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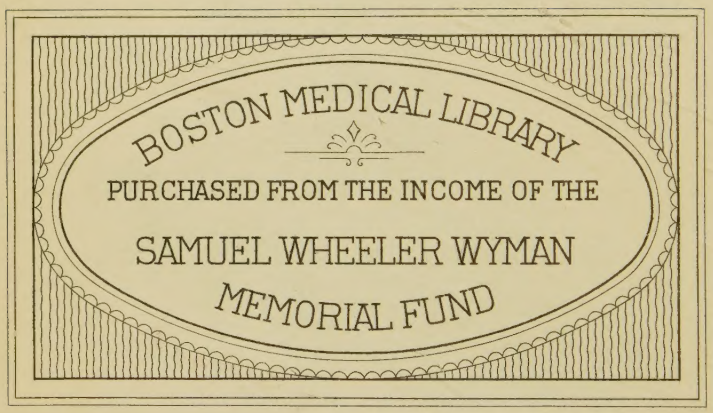
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URGENT SYMPTOMS IN MEDICAL PRACTICE

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PREFACE

This book is intended to be a handy work of reference for the busy practitioner or student who desires to learn quickly, without the delay and labour of consulting several volumes, the significance of a particular symptom, the indications it affords, and the means whereby it may be relieved, due regard being had to the importance of attacking the true cause, and not merely the superficial phenomena of disease. There are many symptoms which are sources of distress, or at least of discomfort, but attention to them need in no way interfere with the measures required to control or cure the main disorder. It is hoped that the information contained in these pages is based on sound pathological knowledge, which has been brought to the test of long practical experience.

R. S.

Birmingham,
April, 1915.

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ABDOMINAL PAIN.—Pain referred to the region of the stomach is by no means always dyspeptic, but when it comes on after taking food there is some ground for the assumption, although there are exceptions to what would seem to be a natural inference. For example, pancreatic colic and appendicular colic may be started by taking food. The commonest cause of pain after eating is flatulent distension of the stomach, caused, not as is commonly supposed, by some abnormal fermentation in the stomach, but by imperfect mastication from defective teeth or a habit of bolting food; the time is usually too short for fermentation to have occurred, and, as numerous analyses have proved, the gas consists chiefly of nitrogen, or, in other words, is atmospheric air swallowed with the imperfectly masticated food. Pain that comes on directly food reaches the stomach may be due to chlorotic gastralgia, a hyperæsthesia of the stomach met with in anæmic girls; but it may also occur in ulcer of the stomach, although the pain in ulcer is usually perceived in from half an hour to two hours after eating. The pain of gastritis is a dull aching that comes on two hours or more after meals. Hunger pain is the pain felt four or five hours after food; it is met with in duodenal ulcer, but affords no sure indication as to the position of the ulcer, whether in the stomach or duodenum. A movable kidney sometimes causes pain after eating.

Nervous gastralgia occurs during fasting, from fatigue,

excitement, or depressing emotions, and is relieved by a full meal, by alcohol, or by rest. So, too, is the pain caused by excessive secretion of gastric juice where this is not so great as to induce vomiting. Neurasthenic patients, as well as sufferers from duodenal ulcers, may wake at 3 or 4 a.m. with pain in the stomach, that may be relieved by taking food. The pain of cancer of the stomach is more constant, and although often induced by food, occurs independently of it. The differential diagnosis of these various conditions presents some difficulty; the discovery of traces of blood by the chemical examination of the stomach contents or fæces points strongly to the presence of an ulcer, which may be simple or malignant, but care must be taken to test the fæces only after no meat has been eaten during the preceding forty-eight hours. (See Melæna.)

Sudden pain in the region of the stomach may be caused by perforation of a gastric ulcer; this is attended by shock, pallor, sunken eyeballs, and all the appearances of great distress; but in an hour or two reaction sets in, the pain disappears, and all the phenomena that caused alarm may pass away so completely that not infrequently the original diagnosis has been abandoned, and an operation that was urgently needed has been postponed until too late. The fact that this masking of the symptoms may occur and the life of the patient depend upon the promptitude with which surgical assistance is rendered should never be forgotten.

Epigastric pain may be caused not only by the conditions already mentioned, but by biliary or intestinal colic, hernia, volvulus, intussusception, and peritonitis.

Tenderness may be present even when pain is absent, and this is important in the recognition of ulcer of the stomach.

The rupture of an ectopic pregnancy (*q.v.*) may cause epigastric pain.

After acute infectious diseases there may be abdominal pain of neuralgic or neuritic origin seated in branches of the intercostal nerves, or more rarely the pain may be muscular (myalgia).

An inguinal hernia may determine pain in the epigastrium on forcible extension of the thigh.

Very severe gastric pain associated with obstinate vomiting occurs in the *gastric crises* of locomotor ataxy.

One of the first indications of the onset of diabetic coma (*q.v.*) is pain at the pit of the stomach, not usually severe, but persistent; there may have been vomiting, respiration is sighing but quickened, the pulse-rate is increased, the urine contains acetone or diacetic acid, or both, and the patient soon becomes drowsy.

In persons who have at some time previously undergone abdominal operations pain may be caused by adhesions of the stomach or intestine to the abdominal wall or to adjacent viscera. Sometimes a scar left by such an operation may be the seat of persistent pain.

Spinal disease may cause epigastric pain, as in Pott's disease of the bodies of the vertebræ.

Tenderness may be present in the abdomen when pain is absent, and should lead to careful examination over the gall-bladder, pylorus, McBurney's point (*q.v.*), and the various hernial openings.

ABORTION.—This term is applied to the interruption of pregnancy before the sixth month—that is, before the fœtus is viable. The symptoms are intermittent pain, bleeding, or escape of liquor amnii fragments of membrane or the entire ovum, from the uterus. There is always danger of septic infection, and all remains of the conception must be cleared away. The causes may be ill-health on the part of the mother from over-lactation, starvation, alcoholism, chronic or acute diseases, poisoning by mercury or lead, or from shock or injury.

Paternal causes may be old age, syphilis, sexual excesses, phthisis, kidney disease, or chronic lead-poisoning. Recurrent abortion depends usually upon constitutional syphilis, valvular disease of the heart, chronic renal disease, or persistent industrial poisoning from lead or mercury. It may be due to the criminal use of lead (diachylon pills) as an abortifacient.

ABSCESS.—An abscess is a circumscribed collection of pus in some tissue of the body caused by local infection with a pyogenic organism. The growth of the pus-producing microbe sets up inflammation with local infiltration of the tissues by leucocytes and blood-serum. These form pus, and when accumulated in quantity and surrounded by a congested barrier which constitutes its wall, an abscess is established. It may increase in size under certain conditions, of which time is the chief; but extending in the direction of least resistance it will burst upon a neighbouring surface or into some cavity, and discharge its contents. This leads to a spontaneous cure, but it is anticipated by the surgeon, who seeks by a timely incision to check the growth of the abscess as soon as pus has formed, and by securing drainage to prevent any further accumulation. It is one of the risks of the spontaneous opening that this may close wholly or partially so that the pus is pent up and the destructive process continues. Successful treatment of an abscess therefore consists in free incision and drainage; but where it is desirable to make a small incision so as to avoid an unsightly scar, a Bier's vacuum flask may by repeated applications secure the same result through a small opening.

ACHILLES JERK.—This is a normal reflex elicited by making the patient kneel on a chair and striking the Achilles tendon just above its insertion, when extension of the foot takes place. If the patient is in bed, let him lie on his side flexing the knee; the physician should hold

the toes and tap the side of the tendon. Absence of this reflex indicates organic disease, perhaps syphilis.

ACHONDROPLASIA.—See **Dwarfism.**

ACIDITY.—See **Eructation.**

ACIDOSIS, ACETONÆMIA, ACETONURIA.—An excess of acids in the body may be relative or absolute; there may be an abnormal increase of acids or deficiency of bases. It is probable that both these factors operate in some of the numerous conditions in which acidosis is recognized. This recognition is by the presence of diacetic acid and acetone, or excess of ammonia in the urine. The principal states in which these signs have been recognized are starvation, diabetes, fevers, sepsis, gastro-intestinal diseases, poisoning by morphine and phosphorus, and in so-called "delayed chloroform-poisoning." The symptoms are a heavy odour of the breath, rapid pulse, epigastric pain, deep and hurried respiration, somnolence, and in diabetes especially final and fatal coma (Kuessmaul's coma). Excess of fatty acids, of starchy food, or deficiency of carbohydrates has been accused of being the cause. The treatment is by a sharp purge followed by large quantities of alkalies by the mouth, by rectal enemata, or by transfusion.

Acetone in the urine is demonstrated by the burgundy-red reaction with solution of ferric chloride, or by the rose-violet colour given with a few drops of a 5 per cent. solution of nitro-prusside of sodium and excess of ammonia. Acetone bodies (acetone, diacetic acid, oxybutyric acid) are not formed in the intestine, but in the muscles and liver. The symptoms vary, in some cases giving rise to those described above, in others to restlessness, insomnia, or delirium, to persistent vomiting, fever, flushed face, furred tongue, thirst, headache, or diarrhœa.

Acetonuria in most cases passes off rapidly. In diabetes it indicates a severe case and the need for relaxing strict diet, so that the patient should obtain from 1,000 to 1,500 grains of carbohydrate daily, divided between milk, potatoes and bread.

The treatment of imminent coma is by the administration of alkalies by the mouth, rectum, or veins; in some cases by giving carbohydrate food, as in the "oatmeal cure" advocated by Von Noorden in diabetic acetonuria; or by the withdrawal or restriction of fat in infantile acetonuria.

Fifteen to twenty grains of bicarbonate of soda may be given every hour by the mouth, or 2 drachms to ½ ounce in warm water enema by the rectum, or 8 or 10 ounces of a 3 to 5 per cent. solution of bicarbonate of soda in normal saline by the veins. A brisk purge should be given in the initial stage, and a hypodermic injection of 1 c.c. of camphorated oil (1 to 10) if signs of collapse appear.

ACNE (see **Seborrhœa**).—Acne is the old name given to a pimple or papule which occurs very commonly in groups upon the face, shoulders, and back, chiefly in young persons. These papules are reddened, conical, and often show a black point at the apex of the cone. By squeezing a plug can be expressed composed of sebaceous matter, cornified epithelial cells, atrophied hairs, and colonies of a bacillus. These plugs are called "comedones," and were at one time believed to result from the irritation of the *Demodex folliculorum*, but this parasite is only occasionally present; they may, by occlusion of the openings of the glands, cause the formation of sebaceous cysts, which may grow to a considerable size. More commonly the result is to form groups of papules or pustules varying in size from a pin's head to a pea, often surrounded by considerable areas of bluish congestion and induration. These papules or pustules are painful, disfiguring at the

time, and often permanently, by leaving pigmented marks and pitted scars not unlike those of smallpox; but, fortunately, the worst of these are more often on the shoulders and back than on the face.

Common acne (acne vulgaris) is met with in boys and girls after puberty, and may continue to trouble them for several years. It is worse in those with dark complexions, and in boys than in girls. It is associated with the activity of the sebaceous glands and hair follicles, so that the greasy appearance of the skin, the presence of the dirty-looking ends of comedones, and the dusky papules of acne, combine to cause a considerable amount of disfigurement.

The varieties of acne need not detain us. Only one need be mentioned—acne rosacea, which attacks the nose and spreads in the shape of a butterfly over the cheeks. It used to be very common among barristers, who were supposed to owe it to their fondness for circuit port, but the ill-ventilated courts in which they had to practise had more to do with it.

The treatment that should be followed is plenty of fresh air, sleeping with open windows, the use of sulphate of soda in ½ pint of hot water every morning in such a dose as suffices to regulate the bowels, remembering that the water is as important as the salt, and that it must be taken daily, the dose of salt being reduced, or even omitted, if the bowels act without it.

Locally the face especially should be sponged daily with warm water and the comedones squeezed out. At bedtime an ointment of 1 to 2 per cent. of formalin in cold cream (ung. aq. rosarum) should be rubbed well into the affected parts and their neighbourhood. Indurated and congested areas may be reduced by scarification with a fine scalpel, taking up the blood with blotting-paper, and when the bleeding has ceased applying a little dressing of collodion and gauze. Various small surgical

procedures may remove disfigurements, and expedite the healing of the lesions that may result from this disease.

ACTINOMYCOSIS.—Infection with **actinomyces**, or ray-fungus, is common among cattle, but is probably acquired by man directly from cereals which are the natural home of the fungus, by infection of superficial wounds, from the barbs or bristles of the flowering grain which penetrate the mucous membrane of the mouth or get access through decayed teeth. It is not conveyed by the meat or milk of infected cattle. The disease occurs chiefly in young males whose occupation brings them into contact with cereals. The disease begins insidiously, often resembling chronic phthisis. There may be no fever, but sometimes the symptoms resemble pyæmia, with multiple abscesses which discharge a viscid lumpy pus containing the actinomyces granules. These are yellow specks, some just visible, others microscopic, which, when crushed in a drop of water and examined under a low power, show radiating branching filaments with club-shaped extremities. Infection is most common in the head and neck, forming tumours in the lower jaw, the bones of the skull, or the tongue; or there may be bloody stools, secondary infection of the liver, peritoneum or lungs, in the last case causing cough; the granules may be seen in the sputa. Nodules in the skin are soft, mottled, purplish-red or yellow, which, on bursting, form excavated ulcers and discharge sticky clear matter. If the brain becomes infected, the symptoms are those of intracranial pressure or meningitis. The course of the disease is slow, leading to death by sepsis; but the treatment by iodide of potassium, of which 30 or 60 grains should be taken daily, has proved so successful as to be regarded as a specific.

ADIPOSIS DOLOROSA.—This is a rare affection in which soft nodules of fat form under the skin in one or symmetrically on both forearms and legs, spreading later to other parts, chiefly on the extensor surfaces. They are accompanied by stabbing, shooting, or burning pains with tenderness of the nerve trunks. There may be local anæsthesia, anidrosis, headache, debility, epistaxis, purpura, and other hæmorrhages. It is believed to have some relation to thyroid degeneration.

AGEUSIA.—Loss of the sense of taste is closely associated with that of smell (Anosmia, *q.v.*). The sensory organs concerned are situated on the posterior part of the tongue, its edges and tip, and in the fauces in front of the anterior pillars. The posterior parts are supplied by the glosso-pharyngeal nerve, and lesions involving the nuclei of the nerve in the medulla or its trunk or sensory fibres may cause loss or impairment of taste. The anterior two-thirds of the tongue are supplied by fibres from the chorda tympani and the fauces by branches of Meckel's ganglion. Pressure by an exostosis on the left Vidian nerve so as to destroy it produced loss of taste in the anterior two-thirds of the tongue.

In organic brain lesions causing hemianæsthesia there may be loss of taste, and in the functional hemianæsthesia of hysteria and of alcoholism the same has been observed. The cortical centre for taste appears to be closely associated with that for smell, and to be seated in the lower part of the temporo-sphenoidal lobe.

The appreciation of the flavour of food, wine, tobacco, and other comestibles depends upon the senses of smell and taste. They are often impaired by acute diseases, especially by influenza, by abuse of alcohol, or by digestive disturbance. This condition, although persisting for weeks, is usually recovered from eventually.

Where the loss of taste depends upon a nerve lesion, the prognosis must depend upon the nature of the lesion.

AGORAPHOBIA.—See **Vertigo, Phobias** and **Manias.**

AGRAPHIA.—See **Aphasia.**

ALBINISM (see **Pigmentation**).—A condition in which there is a congenital absence of pigment from the hair, the iris, the choroid, and the skin, is a peculiarity the cause of which is unknown. In the section dealing with pigmentation the suggestion is adopted that the production of pigment is primitive, and its absence a secondary character. The Eskimos are generally dark-skinned and black-haired in spite of their northern habitat, but some tribes have fair skins, blond hair, and blue eyes, which is explained by the suggestion that they are the descendants of Scandinavian emigrants. Albinism is only met with in individuals, although more than one member of a family may present this peculiarity; but an exception to this rule perhaps exists among the Papuans, where a race has been described with skin varying in colour from pinkish-white to *café-au-lait*, eyes greenish-hazel or brown, and hair like tow. The tendency to albinism is transmitted by heredity, and there is some evidence that the marriage of cousins favours its occurrence. Two brothers married two sisters, their first cousins, none of the four nor any relation being an albino, but the seven children produced by this double marriage were all perfect albinos (Dr. Devay, quoted by Darwin). There is a popular belief that albinos are deficient in constitutional vigour, and in some parts of the country there is a prejudice against white pigs as hard to rear. Albino negroes and fair Europeans are alleged to be more sensitive to the bites of insects than darker individuals, but in parts of the United States albino negroes are taller and broader than the black negroes, and in some animals

there is evidence that albinism is associated with a high degree of constitutional vigour.

Darwin pointed out ("Variation of Animals and Plants") many years ago that white cats with blue eyes are generally deaf, but no explanation of this curious instance of correlation has been given.

Albinism may be partial, and among dark-skinned races piebald individuals are not uncommon; but there is reason to believe that this is pathological, and may be some effect of the poison of malaria. Patches of white hair occur among Europeans, and if their skins were exposed to view, similar pale patches on the body and limbs might be found. Syphilis and leprosy are causes of loss of pigment as well as of pigmentation.

Rapid loss of pigment from the hair is a curious but well-attested fact. It has been observed to follow serious illness, mental strain or over-work, and profound emotion. In many families there is a marked tendency for the hair to turn white early in life, and these persons generally have coarse dark or black hair originally. Dapple-grey horses always become white in a few years, and this peculiarity is a great source of trouble to the 2nd Dragoons (Royal Scots Greys), as a horse is said only to keep fit for the regiment for three years.

Albinos suffer chiefly from defects of vision, the result of want of choroidal pigment, and this leads to nystagmus, as they never acquire true central vision. But all are not alike. The late Lord Sherbrooke (Robert Lowe) had poor sight, and was very myopic, but in spite of these defects he was able to see with the aid of glasses sufficiently to reach his high position as a statesman. Tinted spectacles afford some relief to the retina, and any error of refraction should be corrected by proper glasses.

ALBUMINURIA.—When Contugno discovered that the urine of dropsical persons coagulated on heating, and that

dropsical fluid behaved in the same way, it was a natural conclusion that the condition of the urine was caused by the passage into it of the dropsical fluid.

A long time elapsed before it was realized that the fluid in both cases was the blood-serum, and that there was no necessary connection between the two. The kidney in health is such a perfect filter that it allows only the water and salts of the blood to escape, holding back the albumin, but its delicate structure is easily deranged. Under a great variety of circumstances differing enormously in their gravity and significance, the kidney allows albumin to pass into the urine. Albumin was found in the urine of all members of the boats' crews just after taking part in the May races at Oxford; it has also been found in a considerable percentage of soldiers after a route march and after violent gymnastic exercise; also after epileptic convulsions; but in all these instances the condition is transient.

Albuminuria must be persistent to be of any pathological significance, and even then its importance may vary greatly. One of the least grave is that which is fairly common in young persons of both sexes during the growing age, where the urine on first rising in the morning is normal, but after the erect position has been maintained for some hours it becomes distinctly albuminous; in many cases the albumin diminishes or disappears by evening. This is called "orthostatic" albuminuria, but commonly, though less correctly, "cyclical." It depends upon increase of pressure in the renal veins when the patient stands upright. It is sometimes called "lordotic," from the belief that lordosis, or the antero-posterior curve of the lumbar and lower dorsal spine when the patient is erect, exercises pressure on the renal veins. The urine contains no casts, and the patient is quite free from œdema, cardio-vascular disturbance, or abnormal retinal change. The diagnosis must depend upon the determina-

tion of all these points and on the freedom of the morning urine from albumin. A good prognosis may be given, but the condition often lasts until the patient has done growing and his frame has gained its full strength.

Albuminuria in young men is sometimes spoken of as the albuminuria of adolescence, but except in the class above described there is much risk in accepting this phrase as a diagnosis. In many, if not in most cases, the albuminuria indicates the result of a slight attack of acute or subacute nephritis set up by an acute infection. A distinct history of scarlatina or diphtheria may not be forthcoming; there may have been a latent scarlatinal or diphtheroid throat or a history of repeated slight sore throats to which no great importance has been attached; but enlarged tonsils and thickened uvula and fauces show traces of the disease, while a bacteriological examination of swabs from the naso-pharynx may reveal the persistence of a pathogenic microbe. The urine shows on standing or centrifuging a few granular and epithelial casts, with perhaps a few red and white blood-corpuscles. Such cases should not be dismissed as of no importance, as they require watching. An attempt should be made to get rid of the microbe by a vaccine or by antiseptic douching of the naso-pharynx. The diet should be regulated in so far as to enjoin only a moderate use of animal food, alcohol should be forbidden, and if possible the months after Christmas until the spring is well advanced should be spent in a mild climate.

Albuminuria accompanied by casts of the urinary tubules always indicates nephritis; in acute nephritis there is also more or less blood in the urine and some œdema, although this may be only slight. The amount of albumin present roughly indicates the intensity of the inflammation which is, or has been, present, but not the amount of structural change in the kidneys, for a quietly progressive inflammatory process may reduce the kidneys

to a third of their size and bring the patient to the edge of the grave without revealing itself by any marked symptoms or producing more than a slight degree of albuminuria. Such patients are often first seen by an ophthalmic surgeon, who finds extensive neuro-retinitis, or they are suddenly attacked by cerebral hæmorrhage or a profuse epistaxis. There may be no dropsy at any time, but at others the end may be preceded by heart failure with swelling of the lower extremities.

In all cases where the kidneys are involved examination of the urine shows the presence of renal tube-casts. This is of the greatest importance, because the urine may be albuminous from blood or blood-serum mingling with it in a lower part of the urinary passages. Catarrhal or suppurative inflammation of any portion of this tract may cause albuminuria, and in the absence of renal products the examination must be directed to eliminate in succession the pelvis of the kidney, the bladder, prostate, and urethra.

The investigation may require special skill before an exact diagnosis can be reached, but ordinary familiarity with the usual chemical tests and microscopical appearances alone are needed to enable the practitioner to reach the point at which he can recognize the seat of the mischief, and the special kind of skill, if any, which he needs to call to his assistance. When albuminuria was used as synonymous with Bright's disease, there was great danger of serious mistakes on the one hand by exaggerating unimportant conditions, on the other by regarding all cases as belonging to one class. It is impossible here to discuss adequately all the conditions that, apart from Bright's disease, may cause albuminuria, but tuberculosis, perinephritis, movable kidney, renal calculus or growth, and parasites may be mentioned, as every one of these has even in recent years been diagnosed as Bright's disease.

Albuminuria as a symptom fell into some degree of confusion a few years ago by the introduction of numerous chemical tests for proteids which detected bodies of no known pathological significance. Latterly we have reverted to the original methods, and when we speak of albuminuria we mean the presence of a proteid body in the urine which is coagulated by heat or precipitated by neutralization. The usual method of testing is to fill a test-tube two-thirds full of urine, boil the upper half, and then add a few drops of dilute acetic acid, which will clear up any phosphates, but leaves the albumin undissolved.

The treatment of albuminuria as such is beyond the power of therapeutics, but the conditions on which it depends can in many cases be remedied or relieved. In the persistent albuminuria after a slight nephritis no remedies appear to have any direct effect, but in process of time it usually disappears. The albuminuria of adolescence, which has been described as "orthostatic," and is absent from the early morning urine, is as difficult to check by drugs as the forms dependent upon organic disease of the kidneys. The "lordotic" theory has been upheld by using a support to prevent the lordosis; but anything that relieves the muscles of their natural work weakens them in the end, so that it is better to trust to time and general strengthening measures, such as mild exercises, to remedy the weakness upon which the symptom depends. Iron, cod-liver oil, lactate of calcium, and other remedies may be tried.

ALBUMOSURIA (see **Myeloma**).—The late Dr. Bence Jones discovered in the urine of a case of "mollities ossium" the presence of a body which was not precipitated by nitric acid or coagulated by heat, but precipitated as the urine cooled, and was redissolved by heat. This body is now identified as albumose, or hemi-albu-

mose, a proteid which stands midway between native albumin and peptone; it is not coagulated by heat, but is precipitated by nitric acid, and does not redissolve on heating, but it apparently varies in its behaviour in this last respect. It is now regarded as pointing to the presence of a myelomatous tumour somewhere in the body. These growths are most often seen in the sternum or ribs, where they cause a more or less painless deformity.

ALCOHOLISM (see **Drunkenness**).—Habitual excessive use of alcohol leads in the course of time to many consequences. There may be change of character, impaired will power, weakened memory, and instability shown by alternations of depression with exaltation of mind. An artisan may lose some degree of his skill, handwriting becomes changed for the worse, there is some difficulty in shaving and in buttoning clothes. Articulation is less distinct, and all the senses undergo some degree of blunting. The hands are tremulous, there is tingling or numbness in the extremities, and there may be hallucinations of time and space—that is, the patient loses count of the days, and does not recognize the familiar surroundings of his own home.

Later on the symptoms become graver. There is want of muscular co-ordination, impairment of movement, flabbiness, loss of facial expression, feeble grasp, weak gait, cold extremities, pulse soft and irritable, cyanosis, shallow breathing, constipation; sluggish reflexes of knee, palate, pupils, and skin; weakness of sphincters causing incontinence of urine and fæces.

The healing of wounds is impaired, and such patients are prone to acquire any infectious disease that may be about, especially pneumonia. They generally die of some intercurrent disease.

Apart from the liability to neuritis, they are peculiarly often attacked by cerebral hæmorrhage, causing hemi-

plegia or aphasia. In many cases the nervous disorganization results in dementia, with apathy, tremors, loss of memory, and constant gabbling.

ALEXIA.—See **Aphasia.**

ALKAPTONURIA.—That the urine should darken on exposure to air is a symptom that would demand an explanation. If the darkening is intensified by the addition of an alkali, if the urine reduces Fehling's solution but does not react to the bismuth test (Nylander) or ferment or rotate light, it is due to the presence of alkapton, a harmless urinary constituent, the consequence of some abnormality of metabolism that may be temporary, but is generally congenital, and calls for no treatment.

ALLOCHEIRIA.—This symptom, so named by Obersteiner, is that the patient refers a sensation to the other side of the body, a pinprick in the left foot being felt in the right foot. It is met with at times in tabes dorsalis (locomotor ataxy) and in hysteria.

ALOPECIA (Baldness).—The loss of the hair of the scalp is a misfortune that comes in greater or less degree to all men and women as they advance in years, but in some it is scarcely noticeable, being confined to the vertex; in others it involves complete denudation of all but the sides and back of the head. Loss of hair is more marked in men than in women, but is less considered, for a bald man is content with a fringe of hair, but a woman uses tresses that have no fixed connection with her head as soon as her own locks become insufficient to satisfy the prevailing fashion.

The tendency to baldness is hereditary, being marked in some families and showing itself early, so that by the age of thirty the males have little hair left. It is more common in fair people than in dark, but affects all classes, the saying that there never was a bald sailor being con-

spicuously unfounded; but there may be some ground for the belief that an open-air life is favourable to strength of the hair, as it is for the general health. According to many, the use of headgear is related to the condition, but as practically all civilized people wear some sort of head covering but are not all bald, and as barbarous people who wear nothing on the head do not escape, the relation does not seem very close. Excessive venery is blamed by our French allies for the *maladie des cheveux*, but without sufficient reason.

While baldness is usually due to constitutional weakness of the hair bulbs, there are diseases, either general or affecting the scalp, which lead to loss of the hair. Acute infectious diseases are frequently followed by the loss of a great deal of the hair, but after recovery it is reproduced rapidly, and may be thicker and stronger than ever. During the secondary stage of syphilis the hair falls out, and in some cases from these causes baldness or general loss of hair may result.

The disease of the scalp called "seborrhœa" is responsible for a considerable proportion of early cases of baldness, but in this condition the scalp is greasy and scaly. Salicylic acid applied locally in ointment or lotion is useful.

Alopecia areata is a form of baldness which begins in rounded areas that may destroy the hair over a large part or the whole scalp, or may even extend to the eyebrows, eyelashes, beard, and the hairy parts over the whole body. This affection is by most skin specialists held to be parasitic, but the discovery of a microbe in the skin or the hair follicles is no proof of its pathogenic importance. Its power of producing the disease has not been demonstrated. Nor is the effect of remedies any more convincing, for, although cases are arrested and apparently cured by various applications, an extended experience suggests that the result did not depend upon the remedy. The

disease in some cases stops of itself, and the hair grows again rapidly; in some it stops without the hair growing again; and, lastly, in some it spreads in spite of all treatment until it leaves the patient as hairless as an egg. The condition is comparable to that which deprives the skin of pigment in leucoderma, which is the effect of the toxins of general infections, such as syphilis, malaria, or leprosy.

Rounded patches of baldness result from inveterate ringworm (tinea tonsurans), which, if persisting for years, may completely destroy the infected hair bulbs. The success that attends the X-ray treatment of ringworm leads to the hope that it will in the future remove this cause of partial baldness.

AMBLYOPIA, AMAUROSIS.—These words are used to imply impaired vision, without obvious structural alteration in the eye, visible either externally or by the ophthalmoscope.

They include conditions which in their causation, gravity, and duration vary very much.

Transient amblyopia lasts from half an hour to an hour, and is often followed by an attack of migraine; it is popularly attributed to digestive disturbance.

A severe loss of blood may temporarily deprive the patient of sight, and transient loss of sight has been observed in pregnancy, malarial fever, uræmia, and hysteria.

In diabetes there is frequently temporary or persistent amblyopia, with central scotoma resembling tobacco amblyopia, but it has been observed in non-smokers. Yet the effects of poisons form a very large proportion of the cases classed as amblyopia. Of these tobacco is the most common, but lead, nitro-benzine, carbon bisulphide, santonin, sodium salicylate, opium, and cannabis indica act in the same way; in all there is central scotoma, so

that working vision is abrogated, although the patient can see to get about.

In retrobulbar neuritis there may be marked amblyopia before any ophthalmoscopic appearances are present; it may supervene in connection with disease of the nose, and its accessory sinuses from the inflammation spreading to the optic nerve in the orbit.

In chronic Bright's disease there may be amblyopia from œdema of the retina, with slight ophthalmoscopic change, or from uræmia with none.

AMENORRHŒA.—Under normal conditions the human female after puberty menstruates once every twenty-eight days, the flow continuing for three or more days. This periodical flux recurs until the menopause, which supervenes at about fifty, but may be earlier or later. Variations within healthy limits take place in the duration of the intervals between the periods, and there are exceptional cases of apparently healthy women who never exhibit any external flow.

Menstruation consists in turgescence of the whole of the female reproductive organs, and seems to be of the nature of a monthly house-cleaning, preparing the uterus for its work of receiving and maturing the ovum should this be impregnated.

Amenorrhœa means the cessation of this normal process, and results from any serious derangement of the general health, as in phthisis, but the amount of the flow is greatly influenced by such a comparatively minor disease as anæmia. In chlorotic anæmia (see Anæmia) the menses may be scanty, brief, irregular, or may cease altogether so far as any external flow is concerned; but this does not necessarily imply that the essential function is not performed, although it may be less vigorously than in perfect health. The value of iron as a remedy for chlorotic amenorrhœa is well recognized.

So soon as impregnation takes place menstruation ceases, and it is usual to calculate the duration of pregnancy from the last menstrual period. The importance of the relation of amenorrhœa and pregnancy cannot be overestimated, and in all cases where a woman in good health suddenly ceases to menstruate, the possibility of pregnancy should be considered, and its other signs and symptoms looked for.

AMNESIA (Loss of Memory).—Total loss of memory is very uncommon, but after injuries to the head, cerebral hæmorrhage, or other diseases involving the brain, there may be more or less impairment, and in particular a period just anterior to the attack may be completely and sometimes permanently blotted out. After a fall followed by more or less concussion, the patient, on recovering consciousness, may be unable to remember any of the events immediately preceding the fall; but if these return, they do so in the order in which the impressions were received (see on this subject several instructive cases in Ribot, "Maladies de la Mémoire"). That is to say, the patient recollects the earlier incidents first, and picks them up gradually to some point preceding the fall, at which the process may stop permanently, as if the recording mechanism had been rudely jostled at that moment and the work was never completed.

After an attack of acute insanity, where more or less dementia has resulted, the patient may retain a good memory for the events of his previous life, but has lost all power of recollecting ordinary daily occurrences; he cannot say where he was yesterday or what he had for breakfast, but he can tell of the events in his boyhood with apparent accuracy. A similar failure of what we may call an active working memory occurs in a less degree in old people, who therefore like to dwell on their recollections of the past, which

fill their minds with vivid images, while current events leave little impression.

Elderly but not old people often complain of their memories, but on investigation it usually turns out that it is rather attention that has been deficient. Attention is the foundation of memory, so that we remember those things which we think sufficiently important, or which by their nature impress themselves upon us, sometimes to our discomfort. If we pay no attention to a circumstance at the time, and afterwards try to recall it, we should not blame our memories.

A memory of things seen (visual memory) is of great practical use, especially when it is highly developed. We all have it to a greater or less extent, or we should lose our way every time we went out for a walk, nor should we recognize our friends, their horses, carriages, and dogs. But few can summon up a mental picture of a page of a book and practically read it off, though there are persons who are happy in the possession of this faculty. It seems to be distinct from the ordinary memory, for Charcot related the case of a patient who had possessed it in a high degree, but after a severe mental strain lost it so completely that he did not recognize his friends, and wandered like a stranger in his own town, but in other respects his memory was as good as other people's.

Memory is too much neglected in modern education, for if in the past it was cultivated too exclusively and a parrot-like knowledge was alone tested or looked for, there are many things that our lives are the poorer for if we have not committed them to memory—great poems, noble passages of prose, which serve not only as a constant joy in themselves, but set a standard of beautiful words and style that leave a lasting impression on the mind. The powers of trained memory are marvellous. The ancient Hindu religious "books" were preserved entirely orally, and thousands of lines were transmitted

by this means from one generation to another of learned priests long before the art of writing was known to them. The practice existed up to recent times, and probably does so still. The modern printed copies were written down from the dictation of these pundits, and the text was corrected from their well-stored memories. Chinese education is mainly an exercise of memory, but those who have had to do with the mandarins who attain their position by competitive examinations conducted on this basis recognize fully their high average of ability. If an able man has a poor memory, it is the result of neglect, and he would be much better equipped if he had cultivated it.

AMYOSTHENIA.—Failure of muscular power and contractility without obvious disease of the muscles or nerves is called "amyosthenia," and is met with in hysteria, neurasthenia, and anæmia. The reflexes may be normal, weakened, or exaggerated. The muscular feebleness is only apparent in voluntary movement. In hysteria it may be accompanied by tactile and motor anæsthesia, and the patient may be unable to perform a movement unless he can see what he is doing.

The treatment should be directed to improve the general condition of the patient with electricity, active and passive movement, and massage to the affected muscles.

ANÆSTHESIA, ANALGESIA. — By anæsthesia is meant loss of common sensation, including that of pain, while by analgesia the loss of the perception of pain only is implied.

"Anæsthesia" and "anæsthetic" are terms often used to describe the effects or the means employed to prevent pain in surgical or dental operations. Anæsthetics are—(1) *General*, such as chloroform, sulphuric ether, ethyl chloride, and nitrous oxide gas, which are administered by inhalation; (2) *local*—eucaine or cocaine injected under

the skin or painted upon a mucous membrane in the neighbourhood where it is proposed to operate; and (3) *spinal*, where the anæsthetic, generally eucaine, is injected into the spinal cord, this last form of anæsthesia being limited in its use to the lower part of the spinal cord for operations upon the pelvic organs or lower extremities. Anæsthesia by freezing the part with ether spray used to be practised, but has been given up, as it has been perfectly replaced by eucaine, and, moreover, was never altogether satisfactory, as the thawing of the frozen part was not free from pain.

Anæsthesia as a symptom is met with in certain diseases of the nervous system, sometimes of the brain, but more often of the spinal cord or nerves.

Loss of sensation is commonly met with in hemiplegia (*q.v.*) from disturbance or shock to the posterior part of the internal capsule and optic thalamus; but except where these have been actually ploughed up by the hæmorrhage, this symptom passes off in a day or two. In hysteria, hemi-anæsthesia or hemi-analgesia is common, the indifference with which such patients submit to pricking with a needle or pin being well known; but in organic brain disease these symptoms are rare.

In diseases of the spinal cord, on the other hand, they are common. In tabes dorsalis (locomotor ataxy) there are well-defined areas of anæsthesia, especially over the ulnar surface of the forearms, the inner aspect of the upper arms, and the pectoral regions, the legs and feet.

In syringomyelia there is loss of the perception of heat, so that these patients frequently burn themselves without knowing it.

In transverse myelitis both motion and sensation are lost in the parts below the lesion.

Injuries and diseases of mixed nerves cause loss of motion and sensation, as in alcoholic neuritis, in beriberi, and in leprosy. Where a nerve that transmits

sensory impressions only is involved, sensation alone is impaired, the fifth nerve that supplies the skin of the face being the best example of such a nerve; but lesions of this nerve or its ganglion more often cause pain (neuralgia) than anæsthesia, as the interruption of its fibres is rarely complete.

A slight degree of anæsthesia is called "numbness," and may result from cold or from a blow or pressure on a nerve, or from interference with the circulation in a part or limb.

ANAPHYLAXIS.—This word, suggested by C. Richet, implies the converse of prophylaxis, the resulting condition being a supersensitiveness to the action of morbid poisons. The best-known example is the effect of a dose of diphtheria antitoxin, which may leave the patient in this condition for a long time, so that a second dose may cause pain in the joints, erythematous eruptions, and swelling of glands. The condition does not develop in less than two weeks, so that the second injection should be given within that period.

Hay fever may be regarded as an example of anaphylaxis produced by hay pollen, and the tuberculosis tests of Pirquet and Calmette are miniature applications of the same principle (see Cuti-Reaction).

ANASARCA (Dropsy, Œdema).—"Dropsy," "œdema," and "anasarca" are terms used to express the effusion of blood-serum into the subcutaneous tissue or into the other tissues or cavities of the body.

General dropsical swelling is called "anasarca"; when limited in extent, it is spoken of as "œdema"; dropsy of the peritoneum is named "ascites," of the pericardium "hydropericardium," of the pleura "hydrothorax," of the ventricle of the brain "hydrocephalus," of the tunica vaginalis "hydrocele," but this last is an inflammatory exudation and not true dropsy.

Under normal conditions the lymph spaces and serous cavities of the body are constantly permeated by a stream of serum, which is pumped out by the heart as fast as it is poured in, and the simplest form of dropsy is that caused by failure of the heart adequately to perform this function of a pump, so that fluid begins to accumulate in the most dependent parts of the body. In disease of the mitral valve of the heart the indication of failure of compensation or the supplementary action of the heart's muscle, which may for long conceal the valvular defect, is slight puffiness around the ankles over the insteps, or under the skin over the tibias, which is present in the evening and has disappeared by morning after rest in bed. As the heart fails the dropsy increases in extent, until not only the lower extremities, but the abdominal and other cavities of the body may be invaded by the rising flood.

The dropsy that occurs in acute nephritis takes place suddenly, and is observed first not in the most dependent parts of the body, but in places where the tissues are lax, as in the eyelids, the scrotum, and the prepuce. It coincides with the failure of the kidneys to excrete water, and is generally explained as the consequence of "hydræmic plethora," or of the bloodvessels being distended by an excess of watery blood; but attempts to produce general anasarca experimentally in animals have not been successful, the fluid only escaping into the serous cavities, and not accumulating subcutaneously, so that it is necessary to postulate a change in the walls of the capillaries induced by the presence in the blood of substances, perhaps acids, that the kidneys normally excrete.

In inflammatory conditions there is no doubt an alteration in the walls of the bloodvessels, which permits the transudation not only of serum, but of a larger or smaller number of blood leucocytes, their presence differentiating this exudation from that of true dropsy.

It is characteristic of dropsical swelling that it pits on pressure.

The treatment depends upon the cause, but, speaking generally, rest in the horizontal position is indicated to diminish the work the heart is called upon to do; the administration of heart tonics and diuretics, digitalis, strophanthus or their alkaloids, sparteine, squill, caffeine and theobromine, acetate and nitrate of potash; or hydragogue cathartics, jalap, scammony, bitartrate of potash, and elaterium. In renal dropsy diaphoresis by hot-air baths, pilocarpine, and nitrous ether may be employed. The fluid may be drawn off by puncturing with a trochar and canula connected with a tube. This is more satisfactory for emptying a cavity like the peritoneum or pleura than for the subcutaneous cellular tissue. Elevating the limbs, massage, and the application of a firm bandage from the toes to the thigh assist other measures in getting rid of dropsy from the lower extremities.

ANÆMIA.—The word "anæmia" means deficiency of blood, but is used in various ways to imply different conditions, for which there are more correct terms, but these are seldom applied. As a rule there is no diminished quantity of circulating fluid, except locally.

In the commonest form of anæmia there is no defect in the quantity of blood, or the number of blood-corpuscles, but only of hæmoglobin, the colouring matter of the red blood-corpuscles. This is the chlorotic anæmia of girls, and is usually associated with amenorrhœa or scanty menstruation. The diagnosis may be made certain by determining the percentage of hæmoglobin by colorimetric apparatus. It is readily cured by the administration of iron in considerable doses, as by pil. ferri (six to twelve daily), or the saccharated carbonate of iron (20 grains) in a small sandwich of bread-and-butter or in a cachet three times a day after meals.

More serious forms of anæmia are those in which the formation of blood-corpuscles is impaired by disease of the blood-forming glands or bone-marrow. The diagnosis is made by counting the number of cells in a cubic millimetre of blood by means of the hæmocytometer, and by preparing a dried and stained film of blood, in which the size and shape and other characters of the cells can be determined under the microscope. The presence of nucleated red cells is regarded as diagnostic of pernicious anæmia, a disease which is generally fatal, but recovery is certainly possible, although relapse may occur. The treatment upon which most reliance is placed is arsenic in the form of arsenious acid ($\frac{1}{2}\frac{1}{5}$ grain) in pill, taken three times a day after meals.

Secondary anæmias resulting from hæmorrhage, attacks of infectious disease, cancer, and other conditions are dependent upon their respective causes. Where these are temporary, the blood condition speedily rights itself, but it is very usual to give iron, although perhaps it is not necessary.

ANEURISM.—An aneurism is a circumscribed dilatation of an artery the consequence of disease or injury of its walls. The symptoms vary with the size and position of the artery affected. In the case of the smallest vessels (arterioles) no symptoms are produced until the aneurism leaks or ruptures, causing hæmorrhage, with effects that depend upon the place in which the bleeding occurs, and the interference with functions, if any, which may result. A common cause of cerebral hæmorrhage (see Apoplexy) is the rupture of a minute (miliary) aneurism upon a branch of the middle cerebral artery. When an aneurism occurs in a larger vessel, its symptoms are pain, weight or numbness, a pulsating swelling, or a subjective sense of beating, added to the results of local pressure on neighbouring organs, eroding bones, obstructing hollow viscera,

irritating or paralyzing nerves, or setting up destructive inflammation of parts by interfering with their nutrition. Objectively, besides the pulsating tumour, a thrill may be felt or a systolic murmur heard with a stethoscope applied over it. The chief causes of aneurism are (1) wounds or injuries, and (2) syphilitic disease of the arteries. Thoracic aneurism, or aneurism of the aorta, is the most important of all aneurisms from the variety of its symptoms, the length of its course, and the gravity of its outlook. It may be a fusiform dilatation of the whole arch, or a saccular or pouch-like protrusion from a limited part of the wall. The symptoms to which it gives rise are to be found described elsewhere (see Angina Pectoris, Back Pain, Dysphagia, Dyspnœa, Hæmoptysis, Hoarseness, Laryngeal Paralysis, Murmurs, Pain, Pupil, Stridor). Although productive of so much disability, life may be prolonged for many years.

Note. — A very long-standing case of aneurism used to be quoted when the founding of the Jaffray Chronic Hospital at Birmingham was being advocated, but a few years after the hospital was opened the Committee tried to forbid the admission of these very cases on account of their hopelessly chronic character.

ANEURISMAL VARIX. — As the consequence of a punctured wound or stab a communication is established between an artery and a vein, so that arterial blood is pumped into the vein, causing a pulsating swelling with obstruction to the return of the venous blood and consequent œdema. It used to be common in the days when venesection at the elbow was constantly performed. The symptoms may be weakness, with a sense of weight and swelling, accompanied by a thrill. A systolic murmur is audible over the swelling, and pressure on the artery removes all the signs. The treatment consists in re-

moving the abnormal communication by ligaturing the artery or vein, or otherwise.

ANGINA PECTORIS (Breast Pang).—This distressing symptom consists of a more or less sudden attack of pain or oppression originating in the region of the heart, behind the sternum or at the nipple, often extending down the arms, chiefly the left arm, and in severe cases attended by a sensation of impending death. It may be brought on by exertion, emotion (rage), or by exposure to external cold—for example, walking in a north-east wind.

Men are much more liable than women, and it occurs generally after middle life, especially during the sixth decade. The two most common conditions in which it arises are (1) chronic myocarditis supervening upon old rheumatic valvular disease, and (2) syphilitic aortitis. The latter shows itself on an average fifteen to twenty years after infection, but may do so after five years. The abuse of tobacco may bring on angina, usually in persons who are advancing in years but continue or even exceed the liberal allowance of tobacco they have been accustomed to smoke; but restriction within moderate limits usually prevents the recurrence of the attacks. Should it not, there is probably organic disease present, and the tobacco has been a co-operating factor. High arterial tension, as we see it in Bright's disease, is not by itself a cause, for even when this is over 200 millimetres of mercury, angina is seldom complained of; while, on the other hand, angina may occur in persons whose arterial tension is no higher than 125 or 130. Elderly men who live freely, and who on examination show a trace of albumin and sugar in the urine, who have slightly dilated hearts and enlarged livers, are liable to suffer from slight anginal attacks, which are caused by alcohol, and may cease altogether if the patient becomes an abstainer.

The usual exciting cause of an attack is muscular exertion or violent emotion or exposure to cold.

The symptoms, in addition to the oppression or pain in the region of the heart, are pallor or cyanosis of the face, faintness, and perhaps loss of consciousness. The pulse is generally regular, but the physical signs in the chest depend upon the antecedent conditions. There may be absolutely nothing abnormal to be detected by the most careful examination.

The treatment of an attack of angina pectoris is in the first place *rest*. The patient should stop if walking, sit down or lie down if he can, and take one of the remedies that he ought to carry. The best remedy is a dose of trinitrine (2 minims), made up with water to 2 drachms, which may be carried in a little bottle in his waistcoat pocket. He can easily carry three or four such doses. Or he may carry glass capsules of amyl nitrite tied up in little gauze bags, one of which he crushes, and inhales the vapour. Or he may take a chocolate tablet of trinitrine or mannitol, but these do not act so quickly as the watery solution. Erythrol tablets of $\frac{1}{4}$ grain are also used. In cases where the pain is persistent, inhaling chloroform has been employed or inhaling oxygen gas, but the latter should be drawn through warm water. A special apparatus for inhaling oxygen is supplied by Burroughs Wellcome and Co. A hypodermic injection of morphine is also a safe and efficient means of giving relief in cardiac pain. But as a rule anginal pain is momentary, although very distressing, and the need is rather to relax the spasm than to relieve the pain.

Persons who are liable to attacks of angina should be careful to avoid strenuous exertion, hurrying to catch trains or trams, lifting weights and the like, to guard against violent emotions, and to protect themselves from cold by warm clothing and keeping as far as possible out of cold winds. They should abstain from alcohol,

tobacco, tea, coffee, and cocoa, and make only a moderate use of animal food once a day. The bowels should be carefully regulated. If such persons are too fat, a moderate reduction cure should be attempted by lowering the diet to two-thirds of the number of heat units required for a person of the patient's normal, not actual, weight (see Obesity).

Where there is reason to apprehend syphilitic aortitis, a course of iodide of potassium (5 to 10 grains) and biniodide of mercury ($\frac{1}{12}$ grain) in $\frac{1}{2}$ ounce of compound infusion of gentian three times a day should be carried on for some months. Salvarsan has been tried in Germany, but caution is needed, as death has resulted from its use.

In non-syphilitic cases arsenic should be given, $\frac{1}{25}$ grain of arsenious acid in pill three times a day after food.

Where there is valvular disease, digitalis may be tried, but if the myocardium is degenerated, the good effects of this remedy are not observed. It may be combined in a mixture with liquor arsenicalis.

Should the digestion be out of order, this must be set right, the diet simplified, and one or two blue pills with a mixture of rhubarb and soda to be taken before meals should be ordered.

ANGIOMA, BIRTH-MARK, PORT-WINE STAIN, NÆVUS.—These congenital vascular anomalies usually grow rapidly during the first few months after birth, but at least half disappear spontaneously, an exception being the port-wine stain, which lasts through life. Nævi may be cutaneous, subcutaneous, or mixed, and may be capillary, venous, or arterial. They may undergo atrophy, fibrosis, or cystic degeneration, and disappear or leave a pigmented mole.

Treatment may be by CO_2 snow, electrolysis, or by excision or ligature, but the question of operation must be

governed by the consideration that the scar may be worse than the original mark.

Lymphatic Nævus.—See **Lymphangioma.**

ANGIONEUROTIC ŒDEMA.—See **Dropsy.**

ANKLE CLONUS.—This is a clonic spasm of the muscles of the calf elicited by flexing the leg at the knee, dorsiflexing the foot sharply at the ankle, and maintaining pressure on the sole, the clonus lasting so long as the pressure is kept up. It is not present in health, but is associated with increased knee-jerks.

ANOREXIA (Loss of Appetite) (see **Hunger**).—Loss of appetite is associated temporarily with many, if not most, general diseases, a well-known exception being diabetes. It serves to differentiate cancer from most other stomach diseases, but occasionally in cancer the desire for food is not lost, although dread of pain may restrain it.

Nervous anorexia (anorexia nervosa) is met with in insanity, neurasthenia, and hysteria. In the last it gives rise to the phenomena of "fasting girls" when these are genuine, but carefully watched experiments have proved that it is possible to live for many weeks without food, as in the instances of Succi, Cetti, and others. Unfortunately these hysterical or neurasthenic patients may starve themselves to death, three cases having come under my notice, so that they must be treated seriously, and whenever possible they should be removed to some institution where they can be watched and, if necessary, fed by the tube. In a considerable experience of these cases no difficulty has been experienced in feeding them, but there is a danger of relapse when they return home. The three fatal cases were a young lady who was treated for some time in a private hospital in London, but returned home to a widowed father, where she relapsed and died. The second was a young man who was treated

at his home under the supervision of a nurse who neglected her charge. After his death food which he was supposed to have eaten was found concealed between the mattresses and in a cupboard, while much may have been burnt. In the third case, a young woman, it was impossible to persuade the medical practitioner or the relations of her danger, and she was allowed to die.

ANOSMIA.—Loss of the perception of odours may be due to mechanical obstruction of nasal respiration, to morbid conditions of the nasal mucous membrane, or from pathological conditions in the olfactory bulbs, the frontal lobes, or the cortical centres for the sense of smell.

Inability to perceive odours may be a congenital defect, as in the case of two persons, twins, male and female, known to the writer. It has been shown in some cases that this was due to absence of the olfactory bulbs. This symptom has been noted in insanity, hysteria, epilepsy, tabes dorsalis, cerebellar and other brain tumours, hæmorrhages in the brain, and meningitis. Unilateral loss of the sense of smell has been observed in association with aphasia and right-sided hemiplegia. Experiments on animals have localized this function of the brain in the lower part of the temporo-sphenoidal lobe.

Temporary anosmia may occur after acute infections such as influenza, after syphilis or malaria, blows on the head, poisoning by lead or tobacco.

The patient usually complains of inability to appreciate the flavour of tobacco or food or wine.

Recovery generally occurs in those cases which follow acute infection, but where they are of long standing recovery is improbable.

ANURIA (Suppression of Urine).—The kidneys cease to secrete urine (1) when the circulation in their blood-vessels comes to a stop from failure of the heart's action,

or (2) when these organs are acutely inflamed, or (3) when from blocking of both ureters high up the pressure in the renal pelvis is too great to allow the blood to pass through the renal glomeruli, or (4) from nervous influence.

The first can only be momentary, or death would ensue. In acute nephritis complete suppression occurs occasionally, but more usually a small quantity of urine is secreted. In blocking of the ureter followed by anuria it generally happens that one kidney has been put *hors de combat* in some previous attack of renal calculus, so that only one ureter remains to be blocked; but it has happened that both have been blocked simultaneously. Even then the secretion of urine does not entirely cease, but a few drachms of a clear watery or blood-stained fluid reach the bladder. Nervous anuria is met with rarely in hysteria, but here again it is not complete, an ounce or two being secreted in twenty-four hours. In one case only 16 ounces were secreted in a week.

Some poisons check the secretion of urine—for example, cantharides and the inhalation of ether for purposes of general anæsthesia. Mr. Lawson Tait was endeavouring to repair a torn ureter which leaked into the vagina; the only guide he had to the small opening was the trickling of the urine drop by drop, but he had to ask the anæsthetist time after time to suspend the administration so as to allow the patient to recover partially in order to permit the secretion of urine to be resumed.

Retention of urine from any cause of obstruction in the passage from the bladder is not called anuria, which refers to the secretion, and not to the discharge, of this fluid.

APHASIA.—Inability to speak must be distinguished from any defect, complete or incomplete, in the production of voice.

Aphonia is inability to produce vocal sounds because

of something wrong with the larynx (see Laryngeal Paralysis, Aphonia), but aphasia is loss of the power of speech, dependent upon some lesion in the brain, and in the more common form associated with paralysis of the right arm and leg. It may, however, occur alone. There are two distinct types. In one the patient is unable to articulate a single word, but understands what is said to him, and can read and write (if his arm is not paralyzed); in the other he speaks, but his words have no meaning. If asked his name, he may say "Monday," and he may repeat the same word as an answer to every question put to him. If asked to read, he is unable to do so (alexia), and cannot name the letters of the alphabet shown him in large type, but calls each one "Monday" or something equally inappropriate. He is also unable to write (agraphia). These two forms of aphasia depend upon the seat of the brain lesion, which in the former is generally hæmorrhage into the fibres of the left internal capsule, and in the latter a limited hæmorrhage or softening or growth in the first or highest convolution of the left temporo-sphenoidal lobe.

This symptom occasionally occurs in the subjects of chronic Bright's disease as a temporary condition, but is nevertheless evidence of serious mischief (uræmic aphasia).

The paralytic form, accompanied by right-sided paralysis may end in recovery more or less complete, especially in young persons, where it may be due to an embolism from rheumatic endocarditis or syphilitic arteritis.

In all cases the symptom is an indication of serious brain disease, and a guarded opinion as to the future of the case should be given.

APHONIA (see **Laryngeal Paralysis**).—Loss of voice, so that the patient speaks only in a whisper, is caused by

any condition that interferes with the due approximation and tension of the vocal cords by the vibrations of which the voice sounds are produced.

There are many conditions which interfere with normal voice production, but as a rule they cause not aphonia, but hoarseness. However, a sharp attack of catarrhal laryngitis may for a short time reduce the voice to a whisper. Chronic catarrh, tuberculosis, syphilis, or growths of the larynx, may impair or entirely suppress the voice.

The most common cause, apart from the temporary effect of an acute catarrh, is functional (hysterical) paralysis of the laryngeal muscles. In this condition, if the larynx is examined with the laryngoscope during the attempt to phonate, the vocal cords can be seen to remain some distance apart.

Mechanical obstacles to the approximation of the cords prevent voice production; for example, simple or malignant papillomata or warts growing upon the cords.

Persistent hoarseness or loss of voice is always a symptom that calls for careful investigation into its cause. Functional aphonia is generally successfully treated by the application of a faradic current to the skin over the front of the larynx. In catarrhal laryngitis the patient must not speak at all, but should inhale steam frequently and stay in one room on low diet. Neglect may allow it to become chronic, but by prompt attention to these simple measures an acute catarrh should be quite well in a week.

APOPLEXY.—When a hæmorrhage into the brain is of sufficient magnitude to deprive the patient of consciousness, it is called "apoplexy," but sometimes the word is used less correctly to imply a cerebral hæmorrhage of any degree.

Employed in the former sense, the symptoms are more

or less sudden loss of consciousness, with flushing or cyanosis of the face, vomiting, stertorous breathing, and loss of power in the arm and leg on one side of the body. In the alarm of the onset nothing more is perhaps observed at the moment; but after the patient has been put to bed, which should be done as soon as possible without more disturbance than can be avoided, it may be noticed that one side of the face is flattened, that the pupil of the eye on the same side is wider or narrower than the other, that urine and fæces have been voided unconsciously, and that swallowing is difficult or impossible. The pulse is at first full and bounding, and the temperature normal or subnormal. If the temperature begins to rise and the pulse to grow weak or irregular, the body to be covered with sweat, and the face to look pale or livid, the patient will die shortly.

Complete recovery from an apoplexy never takes place, but a fair return to health may be hoped for where the patient after an interval recovers consciousness and is able to swallow. The arm and leg on one side of the body are paralyzed, and when this occurs on the right side, the patient is usually unable to talk. Recovery is always slow, and there is some permanent impairment of the movements of the affected limbs, some defect of articulation, often unhappily diminution of mental power, weakening of will and self-control, with incapacity for sustained work. When the patient is left more or less paralyzed with defective articulation and unable to work, his condition is pitiable, yet he may live in this miserable state for many years. Death may result from a fresh hæmorrhage or from some intercurrent disorder such as pneumonia.

The older the patient the less prospect there is of recovery.

An epileptic fit may simulate apoplexy, but recovery is rapid and complete. A patient found unconscious may

be in a state of coma from epilepsy, from typhus fever or meningitis, from uræmia, diabetes or influenza, from poisoning by opium or alcohol, or from injuries to the head. It may be difficult to distinguish between these cases correctly, especially whether the case is one of drunkenness or apoplexy, as a man may have been drunk and in that condition get a cerebral hæmorrhage, so that the patient should have the benefit of any doubt there may well be. The state of the pupils and the reflexes should always be noted, and these will help materially to show the presence of serious disease (see Babinsky's Sign).

If the hæmorrhage in the brain has been so great as to have forced its way into the ventricles on both sides of the brain, the symptoms are no longer one-sided; both pupils may be contracted or dilated, all the limbs are relaxed, and death soon follows.

In some cases the onset is slow, consciousness is only gradually lost, but the coma deepens, and usually terminates fatally. This is called "ingravescent apoplexy."

Hæmorrhage into the pons varolii is indicated by marked contraction of the pupils, so as to suggest opium-poisoning; but the temperature is high, and there is crossed paralysis, that of the arm and leg being on one side, while paralysis of the cranial nerves (facial, hypoglossal) is on the other.

APRAXIA.—This term expresses inability to execute skilled movements apart from paralysis, inco-ordination or sensory or intellectual disorder. It is held by some to depend upon a lesion of the posterior extremities of the first and second frontal convolutions.

ARRHYTHMIA (see **Pulse**).—The normal pulse is regular in force and frequency, and corresponds to the number of the heart-beats; the beats in the two radial arteries are also equal in volume and time. Owing to a not

uncommon arterial anomaly, one radial artery may be smaller than the other, the main stream of blood passing to the back of the lower end of the radius.

Variations in the regularity of the pulse-beats in time and force are the result of changes in the innervation or the muscular contractility of the heart. An occasional absent beat or intermission as a temporary occurrence may be due to nothing more serious than digestive disturbance, but in some persons whose good health and the integrity of the heart is certain, the pulse may drop a beat from time to time.

After shock from falls or blows on the head, or as a consequence of toxæmic action on the nervous or muscular structure of the heart, especially after influenza, the pulse may be irregular and intermittent for a considerable time, but recovery is the rule.

Where the muscular wall of the heart has suffered from acute rheumatism or scarlatina, especially if valvular defects have also occurred, there may be permanent irregularity of the pulse, although the heart may do its work fairly well.

In chronic myocarditis, associated as it generally is with chronic arteritis, in old persons, the pulse shows marked irregularity in its beats.

The most extreme irregularity is met with in "heart block" (Stokes-Adams syndrome), where the pulse may stop altogether for half a minute, leaving the patient looking as if he were dead and producing the sensation of dying, then the pulse returns and the patient returns, as it were, to life. This is due to an interruption in the nervous path (primitive bundle), by which the contractile impulse is transmitted to the ventricle.

This condition, although most alarming and sooner or later fatal, is yet consistent with life for many years, the patient having recurrent attacks with intervals of freedom. The auricles continue to beat during the

pulseless period. Digitalis should be given in these cases with caution.

Sinus irregularity is the name given to a form of irregularity in which the long pause or diastolic interval varies in duration, while the intervals between the first and second sounds remain the same, and the pulse-beats are all equally strong. It is common in tuberculous meningitis, but also may be met with in less grave conditions, and is not in itself of great importance.

Extrasystole is a form of irregularity in which there is a small premature beat followed by a long pause. The premature beat may be so feeble as not to reach the wrist, so that it causes an intermission. This intermission usually is equal to the two pulse periods; this is called "compensatory," and is due to failure of the ventricular contraction. It may occur in perfectly healthy persons, but the patient may have a sensation of thumping in the region of the heart.

In the other form of extrasystole, which is non-compensatory and due to failure of the auricles, the succeeding pulse-beats are irregular. These irregularities of the pulse may be the result of abuse of tea or tobacco, or from the toxins of disease—*e.g.*, influenza, pneumonia, or from chronic myocarditis in old age. The most serious form of irregularity is that where it is associated with pain (angina), but much depends upon the etiological condition. Toxins of infectious disease are eliminated after recovery takes place, and although the irregularity may recur for months, there being intervals when the pulse is regular, yet eventually complete recovery takes place unless the myocardium should become involved, as shown by dilatation of the ventricle and displacement of the apex-beat. In old age the presence of chronic myocarditis and arterial disease is so probable that the irregularity is likely to persist, yet is not inconsistent with life being continued for several years.

ARTERIES, PAIN IN.—Inflammation of the aorta (aortitis) is usually syphilitic; it causes pain on exertion, resembling angina pectoris.

Pain like sciatica is caused by arteritis affecting the bloodvessels of one lower extremity.

It comes on with walking, and disappears with rest. There may be cyanosis, pallor, and coldness of the limb, and the art. dorsalis pedis, or even larger vessels, may cease to pulsate.

Embolism or thrombosis of the mesenteric vessels causes sudden acute pain above the umbilicus when the superior mesenteric is involved, and below that structure when the inferior mesenteric is affected. There is obstruction of the bowels, with vomiting and bloody stools, while a tumour can be made out on the left side of the abdomen in the former case, and on the right side in the latter.

The pain of aneurism is localized, constant, or paroxysmal, sometimes referred to the area of distribution of compressed nerves, or to the back when the bodies of the vertebræ are being eroded. For some reason that is not obvious the sternum may be perforated by the erosion of a thoracic aneurism without the production of any pain.

ARTERIO-SCLEROSIS.—General thickening of the smaller arteries throughout the body is an affection caused by syphilis, the presence of injurious substances in the blood, or as a result of senile change. It may occur after infectious diseases, notably typhoid fever, or be due to the prolonged action of alcohol, lead, tobacco, coffee, or tea. When it occurs in children, it is usually the consequence of congenital syphilis. There is a hereditary predisposition to the disease, which may show itself soon after middle life.

The symptoms induced by it are dryness of the skin,

loss of vigour and body weight, pallor, nervous exhaustion, neuralgia, vertigo, muscular weakness, thickening and tortuosity of the vessels, high blood-pressure, angina pectoris, irregular action of the heart, dilatation of the aorta, and chronic nephritis.

Arterio-sclerotic colic occurs in persons over forty years of age in recurring attacks of severe epigastric pain lasting only a short time, induced by exertion or emotion in the absence of any evidence of digestive disturbance.

Arterio-sclerosis may be the cause of a form of neurasthenia marked by chronic headache, giddiness, flushing or pallor, and nervous exhaustion. These symptoms are promptly aggravated by even very small quantities of alcohol and by table-salt.

Among the other consequences of arterio-sclerosis are intermittent claudication and cerebral hæmorrhage.

The treatment consists of the use of warm baths, regular moderate exercise, or rest and gentle massage. Obesity should be reduced by dietetic restriction. The diet should be lacto-vegetarian, with abstinence from tobacco, alcohol, tea, coffee, and table-salt. The most useful drugs are saline aperients, iodide of potassium, and bicarbonate of soda. Insomnia should be treated by bromides or bromural.

ARTHRALGIA.—Pain in joints has a most varied causation. The so-called growing pains of children probably indicate a rheumatic tendency, and point to the need for a flannel nightdress, for sleeping in a blanket without sheets, and for little or less animal food.

In children, too, the pain may be the first symptom of tuberculosis of the joint.

In older persons the pain may be due to gout, rheumatism, or tuberculosis. Pain felt on movement may be caused by a loose cartilage or a so-called "foreign body" in the joint, which can only be cured by opening the

joint and removing the cartilage or foreign body under thorough aseptic conditions.

In constitutional syphilis pain in the joints is common, and is usually nocturnal.

ASCITES.—See **Dropsy.**

ASPHYXIA (see **Dyspnœa**).—As a symptom nothing can be more alarming than inability to breathe, for if relief cannot be given, life cannot be maintained.

In a healthy person sudden asphyxia may be caused by the impaction of some solid substance, such as a denture or a piece of meat, which has slipped out of the mouth upon or into the opening of the larynx.

Under pathological conditions asphyxia is threatened in any disease of the larynx, in spasm (laryngismus stridulus), in bilateral abductor paralysis of the vocal cords, in membranous croup or diphtheria, in syphilitic perichondritis, in pressure upon the trachea from any tumour or aneurism or an enlarged thyroid or thymus, in asthma, bronchitis, double pneumonia, or pneumothorax. In many of these the threatened asphyxia may be averted by prompt tracheotomy or laryngotomy, or by removing the obstruction by the fingers or forceps, or by vomiting.

Asphyxia from irrespirable gases occurs from smoke from carbonic acid or from carbon monoxide, in house burning, in fires in coal-pits, or on board ship. Carbon monoxide sometimes finds its way into houses through cracks in the soil from smouldering fires in disused workings of coal-pits. Death may occur from asphyxia due to escape of illuminating gas or the fumes of charcoal or coke fires into unventilated bedrooms. Accidents occasionally happen to workmen engaged in sewers. If life is not extinct, recovery may be obtained, after the patient has been removed to fresh air, by artificial respiration and cold affusion to the head and chest.

ASTASIA-ABASIA.—This inability to stand (astasia) and to walk (abasia) is a symptom of hysteria, as there is no true paralysis or inco-ordination, and the patient can sometimes crawl. Attempts to walk are merely wild flounderings with arching of the body and stiffening of the legs. When lying down the patient can move the legs and feet quite well. Varying degrees of inability may be present; some can walk if supported, others can walk a little with short steps and dragging the feet, others can neither walk nor stand. There may be other signs of hysteria, hemi-anæsthesia, or analgesia or convulsions.

ASTHMA is a spasmodic affection of the respiratory apparatus in which the thorax is fixed in the position of full inspiration, and expiration is prevented. There are many theories as to the nervous mechanism by which this is brought about, but the important practical fact is that the spasm is reflex, set up by irritations varying much in their nature and seat. The nasal mucous membrane is a common situation, and in a case known to me a violent attack lasting some hours followed the touching of a sensitive spot in the nose by a surgeon's probe; this patient had been a life-long asthmatic subject. Nasal polypi may cause asthma, which disappears completely after their removal. The effects of inhaling hay pollen or street dust are familiar and easily intelligible, but the action of the effluvia from a straw mattress, a stable, a horse, or a cat, are more obscure. That such emanations act in this way, however little they are susceptible of satisfactory explanation, cannot be doubted. Asthma in persons who have inherited a predisposition to the disease may show itself in childhood, and the liability usually persists throughout life. But the influence of locality is very marked, as many persons experience relative if not complete freedom from their attacks in a particular place. This is entirely personal, as the resi-

dence which benefits one case may be of no service to another. For example, an asthmatic father found a place which suited him, but his son, who up to that time had not shown symptoms of having inherited the disease, developed it in the new home. I have known several instances of asthma making its first appearance late in life, and persisting for years as a consequence of influenza. The asthmatic attack generally occurs in the night, obliging the patient to sit up and gasp for breath. By morning the struggle has generally abated, but some evidence is left in over-expansion of the chest, slight stridor, and hurried breathing.

There is urgent need for prompt relief during the attack, but a good deal of individuality is shown in the effect of remedies. A hypodermic injection of morphine (Steavenson), the use of a spray of cocaine and adrenaline, of eudrenine, the inhalation of the smoke of tobacco (Trousseau), of nitre paper or stramonium, or of a dose of 5 to 8 grains of pyramidon taken by the mouth, has each its advocates, who speak of the personal benefit derived. Inhaling the smoke of a mixed powder such as the compound lobelia powder (Martindale) is very generally helpful. A disease wherein the nervous system plays such an important part is prone to be a field for the exhibition of the phenomena of auto-suggestion, so that every new remedy has for a time remarkable results, and quackery, aided by advertisement, reaps a rich harvest among asthmatics.

In the *prevention* of attacks much may be done by studying the history of the case, and, where the cause can be discovered, by removing it. For example, the disease may have developed only since the patient has come into his present neighbourhood, which may be too low or too high, or has engaged in the present occupation —*e.g.*, work in a furrier's shop—or adopted some habit such as eating late or heavy suppers. The cases I can look

back upon with the most complete satisfaction have been those where the cause could be discovered and removed.

The most valuable drug to diminish the liability to attacks is iodide of potassium, which should be given in doses of from 5 to 10 grains three times a day, combined with the fluid extract of grindelia (15 minims), syrup of tolu (1 drachm), and camphor water.

Any obvious cause of irritation in the respiratory and alimentary tracts should be removed by attention to the cavities of the nose and its adjacent sinuses, to the mouth, including the teeth, to the stomach and bowels, the regulation of the last being essential, and finally to the diet, which should be simple and so arranged that the principal meal is taken in the middle of the day. At no time should the stomach be overloaded, and all food should be eaten slowly and carefully masticated. Uncooked fruit and vegetables (salads) should not be taken later than midday, if at all; alcohol should be used in any form only with the strictest moderation, and port, Madeira, sherry and malt liquors are better let alone. A fragment of indigestible food may provoke and keep up a crisis, so that an emetic should be tried in an obstinate case. This may be a teaspoonful of ipecacuanha wine or a scruple of zinc sulphate in warm water by the mouth, or a grain of apomorphine injected subcutaneously.

ATAXIA.—When the movements of a limb can be performed, but are carried out in an irregular or incoordinated manner, the condition is called "ataxia." If the muscular power is tested, it is found to have undergone no diminution, as is commonly demonstrated in locomotor ataxy (tabes dorsalis) by showing that the patient can stand bearing another man on his back, yet his power of controlling his muscles is so much impaired that locomotion is difficult. Tabes dorsalis is a disease

of the posterior columns of the spinal cord (columns of Burdach), but similar symptoms occur in diseases of the nerves (neuritis), in some cases of alcoholic neuritis, in diabetic neuritis, and in beriberi.

In some cases the hands also may be affected, so that writing becomes difficult or impossible. Ataxia may be the early stage of general paralysis of the insane. A patient may in the beginning have ataxy involving his legs, then his hands, next he may get an apoplectic seizure with hemiplegia, and finally an acute maniacal outburst requiring his removal to an asylum. Ataxia is therefore a symptom of gravity which must be watched. The toxic cases are the most favourable, as where the poison can be stopped or eliminated recovery may be hoped for.

ATELIOSIS.—See **Dwarfism.**

ATHETOSIS.—After an attack of hemiplegia (*q.v.*), when the hand has only partially recovered, it may be the seat of involuntary, slow, irregular movements of the fingers, of the wrist, or even of the whole arm. This is called "athetosis," and is caused by persistent irritation in the brain centre or motor tract corresponding to the group of muscles in which the movements occur. It is incurable.

ATROPHY.—Wasting is a symptom common to many diseases, but the word "atrophy" is used either to imply the general wasting of young infants, which is usually due to improper feeding, or to congenital syphilis, or more definitely the wasting of a particular structure, such as a muscle or group of muscles or a gland. It is the converse of hypertrophy, which means increase in size and development. Atrophy may be the result of disuse, as, for example, where a joint becomes fixed the muscles that moved it shrink, or where muscles can no longer be used

on account of motor paralysis, they undergo the same change, but in both these cases the result comes about slowly.

A much more rapid form of muscular atrophy occurs in disease of the anterior horns of grey matter of the spinal cord; hence the opinion that these are "trophic centres," which preside over nutrition in some special manner. This function of the spinal cord is shared by the nuclei in the medulla. Rapid wasting of muscles from disease in the medulla occurs in "bulbar paralysis," affecting the muscles of the lips, tongue, and larynx; in the spinal cord in progressive muscular atrophy (spinal form) and anterior polio-myelitis, but these may be the same disease occurring in one case as a very chronic and progressive process, and in the other in a subacute form, with a tendency to limitation in its course. Lastly, in the condition called "amyotrophic lateral sclerosis" an inflammatory process which extends downwards along the antero-lateral or motor tracts of the cord spreads into the anterior horns, causing much greater muscular wasting than would result from disuse.

Rapid wasting of muscles also follows neuritis, however caused, and there is still another well-established form of chronic muscular atrophy of unknown origin which occurs independently of any disease of the nerves or nerve centres, a primary or protopathic amyotrophy; it occasionally follows typhoid fever.

Primary **myopathy,** or atrophic disease of the muscles, occurs in five forms, in all characterized by slow but progressive weakness of the muscles of the trunk and limbs without sensory disturbance. In the **infantile** form the weakness shows itself between the third and sixth month, the child being unable to sit up, and later makes no attempt to walk, although there is no definite muscular atrophy or hypertrophy; but the arms and legs are thin and the shoulders loose, movements are possible but

weak, the electrical response is diminished. It is slowly progressive, but not fatal.

Erb's juvenile type comes on between the ages of ten and twenty; it is a family disease affecting both sexes. The arms are thin and the scapulæ project; the muscles of the trunk, shoulder girdle, and pelvic girdle are wasted, but those of the forearms and legs are well developed. The **pseudo-hypertrophic** type is also a family disease, but chiefly affects males from the age of five or six onwards. The calf muscles are firm and large, while the pectorals, infra-spinati, and other trunk muscles waste; there is marked lordosis, the gait is waddling. When lying down, the child rises by rolling over and seizing his knees with his hands, and climbs up his own legs by shifting his hands. The hypertrophied muscles are weak, finally atrophy, and become contracted. The **facio-scapulo-humeral** type is a family disease also; its seat is indicated by the title. The child cannot smile, frown, or whistle, but the muscles of the eyeballs, of mastication, deglutition, and speech are normal. The head hangs forward, the scapulæ project, the muscles of the shoulder and pelvic girdles are wasted; the sphincters are unaffected. The progress is slow, and none may be made for long periods. The **hereditary** form affects many members of both sexes of the same family at or after the age of ten. The weakness shows itself first in the pelvic girdle, then in the back, and lastly in the limbs, the muscles being flaccid, wasted, and exhibiting fibrillary twitching. Unlike the other types, this is due to spinal cord disease (degeneration of the anterior horns). Electrical examination may give the reaction of degeneration. Bulbar paralysis may supervene and cause death. The duration is three or four years.

Atrophy of glands is generally the result of inflammatory conditions, but in some cases it may result from obstruction or division of the duct, or in others from

obscure conditions, as in the wasting of the thyroid gland in myxœdema, and occasionally of the suprarenal body (primary atrophy). Ogston's operation of excising a piece of the vas deferens for enlarged prostate was followed by rapid atrophy of the corresponding testicle.

In medical practice among the very poor one sees many cases of wasting or marasmus among babies, in part due to constitutional weakness from premature birth or to attacks of acute disease, diarrhœa, or broncho-pneumonia, but a great deal to improper feeding and neglect. These children, when taken into hospital, kept warm, clean, and dry, and fed rationally, may soon be well enough to return home, but in a few weeks they return as bad or worse, or dying from parental neglect. The symptoms are vomiting, colic, abdominal distension, fretfulness, emaciation, with sunken face, wrinkled skin, projecting bones, cold hands and feet, excoriations and erythema of the buttocks, boils, and bedsores. The temperature is subnormal, the stools pale or loose, offensive, green or curdy. At first they take food ravenously, but later become indifferent. They die like flies from summer diarrhœa or broncho-pneumonia, but in many cases their mothers ought to be indicted for manslaughter.

AURA.—Before an epileptic attack some patients have a warning sensation which they learn to recognize. It is rather the exception than the rule, and varies greatly in its character. The word denotes a sensation as of air blowing upon some part of the body and passing up to the head, but it now means any warning sensation which may be mental as of dread, pain in some part of the body or limbs, a special odour, flashes of coloured light, explosive noises in the ears, cramp or trembling in a limb. The aura has the advantage that it may give time for the patient to sit or lie down before the attack comes on. It is doubtful whether it is true that com-

pression of a limb by the fingers or a ligature can avert an epileptic attack, but it may do so in hystero-epilepsy.

AUTOMATISM.—The condition in which a person performs apparently purposeful and complex acts lasting over a considerable space of time, but is nevertheless unconscious of what he is doing, and retains no memory of his actions on coming to himself, is either a post-epileptic symptom or occurs in those subject to epilepsy, although no complete attack may have preceded the loss of consciousness. This is called "automatism." A patient in this condition may leave his home or his business, walk for some distance, and return home, or wake up to find himself going he knows not whither or wherefore. In this state he may commit breaches of propriety, or even crimes, without being responsible, but fortunately his conduct, although regarded as "strange," is not usually of a kind to bring him under the notice of the police. These cases require treatment as epileptics by sufficient doses of bromides, and their friends should be warned to watch them so as to keep them out of mischief. The condition much resembles somnambulism (*q.v.*).

BABINSKY'S SIGN.—This is a valuable aid in diagnosis. If we stroke the sole of the foot under normal conditions, the toes curl downwards or are flexed; but when there is any interruption to the transmission of motor impulses, the toes turn upwards, or the reflex is said to be extensor. It is this extensor reflex which is called, after its discoverer, "Babinsky's sign." The symptom indicates a lesion somewhere in the motor tract, which may be in the brain or cord. In transverse myelitis of the lumbar region, and in severe lesions of the nerves of the lower extremities, all reflexes are abolished, so that the response is neither flexor nor extensor.

BACK, PAIN IN THE.—Apart from lumbago, which is described under its own heading, there are many kinds of symptomatic pain in the back which deserve notice.

Pain in the spine about the middle of the back or over the sacrum is often caused by fatigue, not so much from physical exertion as long working at a desk. The pain may be due to more serious conditions—*e.g.*, tuberculous disease of the vertebræ or erosion of the spine by the pressure of an aneurism—but in these cases it is fixed in position, does not disappear after resting, and is generally associated with other signs indicating its source.

Pain over the coccyx, or coccydynia, may depend upon some disease of the rectum, so that the presence of piles, fissure, ulcer, or inflammation, should be excluded. An obstinate form of this pain met with in women is due to some local injury met with in the course of parturition. Numerous remedial measures have been suggested and carried out without any uniformly successful plan having been discovered. It is better to try the various preparations of the coal-tar series, acetanilide, phenacetin, and their combinations with ammonia, than to experiment with opium and its derivatives or with alcohol.

Stomach disease causes pain referred to a point between the scapulæ or below the angle of the left scapula, or over the ninth, tenth, and eleventh ribs just to the left of the spine.

Pain depending on disease of the liver or gall-bladder is felt below the angle of the right scapula or to the right of the tenth and twelfth dorsal spinous processes.

Pain in the kidney is often referred to the outer edge of the quadratus lumborum muscle on the corresponding side.

Pain from an enlarged spleen may be experienced in the left lumbar region.

Pain dependent on disease of the pancreas may be felt in the lower dorsal or lumbar vertebræ.

In anæmia there is often pain in the back noticed on waking, but which improves after rising.

In neurasthenia or hysteria there may be general pain in the back, or it may be localized but vary in position, sometimes being interscapular, sometimes lumbar or sacral. It is often associated with tenderness over the vertebral spines (spinal tenderness). Similar painfulness and tenderness is not uncommon after typhoid fever (typhoid spine).

Pain or tenderness on either side of the second and third lumbar vertebræ may be caused by acute or chronic pancreatitis or cancer calculus or cystic disease of that organ.

In the initial stage of variola severe pain in the lumbar spine is most characteristic, and is greater than at the beginning of any other eruptive fever.

BACTERIURIA.—The presence of bacteria in the freshly passed urine is due either to external infection or to the passage of microbes from neighbouring organs or from the blood. The anterior portion of the urethra is said not to be absolutely sterile, but a healthy bladder and normal urine do not allow the growth of microbes even when these have been injected. Infection of the bladder with gonococci from the urethra may undoubtedly occur.

Retention of urine is the main factor in bladder infection, the microbes being introduced by instruments. Infection may take place from disease in neighbouring parts, certainly by the bursting of an abscess or by a fistulous communication with the bowel, or possibly through the lymphatics. An infective pyelitis, generally due to *Bacillus coli*, may infect the bladder secondarily, but as a rule the order of infection is the reverse.

Infection of the urine through the blood undoubtedly occurs in typhoid fever, septic endocarditis, and other

septicæmias, in pneumonia, erysipelas, and tuberculosis. In bacteriuria the urine is always slightly turbid from the presence of catarrhal and pus cells.

The treatment of bladder infection is by removing the cause of retention by prostatectomy or other operations, by irrigation with boric acid, and by the administration of hexamine. This last remedy is the only efficient means of checking infection introduced through the blood.

BECHTEREW'S REFLEX.—Tapping the dorsum of the foot near the cuboid bone is followed in health by extension of the toes, but in spastic paralysis flexion occurs instead. Absence of the reflex appears to have no importance.

BEDSORES.—Sores over the sacrum, the great trochanters, and the ischial tuberosities are apt to occur in bedridden patients who are too weak to turn and are not carefully nursed. In myelitis (*q.v.*) these bedsores occur so acutely that the nursing is not always to be blamed; but for this reason these cases should always be put upon a water-bed, the back examined daily, and rubbed with methylated spirit to harden the skin. All helpless patients should have their positions changed two or three times a day, and their backs rubbed with spirit and dusted with talc powder.

BICHAT'S PAD.—There is a lobule of fat called "Bichat's pad," which lies in front of the parotid gland in each cheek, and may undergo lipomatous enlargement; hence its importance.

BIERNACKI'S SYMPTOM.—Everyone is familiar with the tingling sensation in the little finger that is caused by pressure on the ulnar nerve. In tabes dorsalis (locomotor ataxy) this phenomenon may fail, and its absence is called "Biernacki's symptom."

BILIOUSNESS.—This popular expression has no definite meaning, but those who use it, when asked to explain, generally say that they mean that they vomit or feel inclined to do so, or sometimes that they have vomited bile, which of course means only that, having emptied the stomach, or that organ being empty, they have induced regurgitation of bile into the stomach by the effort of vomiting, and have ejected it. Sometimes with greater accuracy a person whose conjunctiva or skin is slightly yellow is said to look "bilious." The "bilious" temperament is a synonym for the "choleric" temperament, in which the old doctrine of humours taught that the bile predominated. Such persons are said to be dark, lean, and sallow, like the "lean and hungry Cassius," but modern medicine has not yet been able to attach any significance to these characteristics, although the late Professor Laycock of Edinburgh tried his best to rehabilitate the doctrine.

BLEEDERS.—Some people have the constitutional peculiarity that their blood is devoid of a sufficient amount of fibrin ferment, so that if their bloodvessels are wounded they continue to bleed. This condition is called "hæmophilia." It is rare, but became widely known to the public on account of the late Duke of Albany (Prince Leopold) being a sufferer from it. Such people bruise from the slightest pressure, and an ordinary contusion gives rise to a hæmatoma or effusion of blood between and into the muscles or into a joint. If a tooth is extracted the bleeding may be so difficult to stop that life is endangered. It occurs almost exclusively in males. In purpura and scurvy the same condition occurs as an acquired disease, but hæmophilia is congenital and not acquired. There is no means of curing the condition or preventing its recurrence, but the bleeding when it occurs must be arrested by pressure and by the administration

of fibrin ferment, which is now supplied in sterilized glass bulbs under the name of "coagulose" (Parke, Davis and Co.), full directions for its use being given with it. This should be injected under the skin, or in the case of epistaxis the nose may be plugged with lint soaked in the solution.

BOILS.—A boil or furuncle is a circumscribed inflammation of the skin caused by infection with *Staphylococcus pyogenes* (*aureus*, *albus*, *citreus*). The microbe probably invades the sweat glands and sebaceous follicles, but remains quiet until its growth is favoured by local irritation or by a general lowering of the resisting power of the body, as by debilitating disease—*e.g.*, influenza, malaria, or diabetes—or by a chronic poison—*e.g.*, alcohol. It is more common among Europeans in hot climates for several reasons, the debility experienced from the heat, want of sleep, unsuitable diet, excessive action of the skin and sweat glands, or injury to the skin from the bites of insects, favouring infection.

The peculiarity of a boil is that the circumscribed inflammation reaches such intensity in the centre that a slough or core is formed. The inflammation is accompanied by much pain, which is greatest where the tissues are densest, as in the nose, external auditory meatus, and nape of the neck. In some cases the induration stops, the inflammation subsides, and the papule slowly disappears without any core being produced. This is called a "blind boil." But as a rule a small pustule forms, from which a drop of pus exudes, beneath which lies the core surrounded by the swollen skin. The core separates in a few days, after which healing takes place rapidly; but a scar is left, which may be pigmented, or if the core has been large, is depressed from the loss of substance.

The local treatment for a boil is the free application

of solution of iodine, so as to thoroughly disinfect the skin. This should be carried out wherever the beginning of a boil can be detected. If the boil has formed, it should be incised, fomented with hot water, its contents evacuated, and bleeding encouraged by a Bier's vacuum glass. The wound and the neighbouring skin should be treated freely with iodine, and the whole covered with a pad of gauze secured with a bandage.

The constitutional condition should be treated appropriately, and by change of air, liberal diet, arsenic, dilute sulphuric acid, yeast (furunculine, levurine), or calcium sulphide, which at times seem to be effective. Sulphurated saline waters should be tried, such as those of Harrogate, Schinznach, Llandrindod, Llanwrtyd, or Vernet-les-Bains; but these are more likely to be successful if the patient can betake himself to the locality of the spring.

A carbuncle differs from a boil by its tendency to spread, consequently by its greater extent and by the presence of more than one focus of inflammation or core. The extent of the inflammation, the severity of the pain, and the intensity of the toxæmia, give it a character of gravity beyond that of a boil, painful though that may be in itself and distressing by its recurrence. Carbuncle often occurs in persons already debilitated, and death may occur from exhaustion or from septicæmia.

The treatment should be similar to that for boils, but the surgical proceeding may involve more energetic removal of the necrosed tissues and thorough sterilization of the wound with iodine or peroxide of hydrogen. A more stimulating diet may be necessary to combat the toxæmia. The value of alcohol should not be overlooked; it should be given freely, 8, 12, or 16 ounces of good port wine in twenty-four hours, continued in these doses over three or four days, by which time its good effect should be manifested and the toxic condition

checked. Thereafter the wine, if continued, may be used in much smaller doses.

The Oriental Boil, common in the tropics, attacks all ages and sexes, especially upon exposed parts of the body. It begins by itching, followed by the formation of a red spot, which enlarges, softens, breaks down, leaving an ulcer, which spreads until it is an inch or more in diameter with excavated margins. It discharges sero-pus, which dries and forms a scab. There is more or less constitutional disturbance, sometimes severe. Small ulcers may heal rapidly, but others may last for a year. Change of climate is most important in the treatment, which is otherwise not very successful. Care must be taken to avoid auto-infection. It is recommended that the initial red spot should be destroyed by caustic or the actual cautery or the sharp spoon.

The Veldt Sore, or Natal boil, is an allied condition. One or more blisters form, usually on exposed parts of the body. When they burst they leave ulcers, with red, ill-defined margins. The treatment recommended is removal of any dead skin and dressing with antiseptic lotion.

BREAST.—See **Mamma.**

BREATHING, PAIN ON.—Any inflammatory affection of the apparatus concerned in the act of respiration may cause pain, especially on taking a deep breath. The muscles of respiration, the ribs, and their articulations, the lungs and their pleural investments, may be the seat of the pain. The disease that affects any of these structures may originate in some neighbouring tissue and involve them by direct extension, as in cancer of the breast involving the pectorals, the intercostal muscles, and the ribs, or in pneumonia where pleurisy follows.

The most common cause of pain on respiration is

pleurisy, and when this occurs without marked general symptoms or cough it is generally tuberculous. But this must not be taken to imply that more pronounced signs and symptoms exclude tubercle, as, unfortunately, this is the most common cause of all pleurisy. The value of the remark is to call attention to the importance of cases that seem slight, and for that reason might be dismissed as "rheumatic." More rarely pleural pain without other objective sign may be the first indication of a malignant growth in the lung.

In estimating the significance of pain on respiration it is necessary to determine its exact seat, and to examine the chest so far as is possible by inspection, stripping the entire trunk, and comparing the two sides, palpating the skin, muscles and bones, noting the degree of mobility, the state of the intercostal spaces, the resonance on percussion, the auscultatory signs, including the character of the breath sounds, their rhythm, their accompaniments, and the vocal resonance.

Herpes zoster may cause pain on breathing, but as soon as the eruption makes its appearance the diagnosis is plain. Mistakes of this kind have occurred, but only because inspection was imperfectly performed and the first few spots were overlooked.

Myalgia, or muscular rheumatism, is marked by pain on movement without tenderness, pleuritic friction, cough, or fever. Examination of the chest gives negative results. In intercostal neuralgia the pain is not increased by movement.

In myositis the muscles are tender, there is local swelling, and an abscess may form.

In fractured ribs there is a history of a fall or injury, and bony crepitus can be felt. Pleurisy may result from injury to the lung.

Syphilitic periostitis causes a painful swelling on a rib, the pain being in some situations increased on respiration.

Spinal disease involving the articulation of one or more ribs may cause pain on breathing, is attended by local tenderness, and is generally preceded by other signs of disease in the vertebral column.

Stitch in the side is caused by an irregular muscular spasm, more common in young people, especially girls. It is generally brought on by yawning or stretching, and is of no importance, but is relieved by simple rubbing by the hand with or without some anodyne ointment such as the unguentum methyl salicyl. co. (B.P.C.). This is useful in all cases of so-called "pleurodynia," when serious causes of pain have been excluded by careful examination.

BRITTLENESS OF NAILS.—As one grows old the hair gets grey and stiff, the nails show longitudinal corrugations and become brittle, apparently from loss of moisture. In cutting them they are apt to break; they should be wetted before being cut or filed. Gout is said to be a cause of this brittleness; it is doubtful whether it has this effect apart from age, but the two generally go together. The same may be said for osteo-arthritis as an alleged cause.

BROMIDROSIS.—Some persons secrete perspiration with a strong and very disagreeable odour. It is more marked in the young and the dark-skinned races, especially in the skin of the feet and axillæ. The most efficient remedies are personal cleanliness, frequent changes of linen, socks, or stockings, and the local application of a powder of equal parts of boric acid and powdered talc, or the axillæ and feet may be painted with liquor carbonis detergens. The internal administration of tincture of the perchloride of iron or of sulphide of calcium should be tried. Boots or shoes that have been worn before treatment should be sterilized by heat.

BURSITIS.—There is a serous sac interposed over bony prominences to ward off pressure; for example, over the patella, the elbow, and the head of the first metatarsal bone. These sacs are called "bursæ," and their inflammation is "bursitis." "Housemaid's knee" is bursitis over the patella. "Bunion" is inflammation of the bursa over the first metatarsal bone, but this is usually the consequence of "hallux valgus" or dislocation of the great toe outwards, caused by wearing boots or shoes that are too short. Bunion is much more common in women for this reason. It may be treated by wearing straight boots of adequate length, and these may be provided with a "post" to keep the toe straight, or the same result may be attempted by the use of Japanese socks with places for the digits like gloves. In obstinate cases it may be necessary to remove the head of the metatarsal bone.

Housemaid's knee is caused by pressure in kneeling, and may be cured by avoiding pressure, by painting with iodine, or in very obstinate cases by incision or excision of the sac.

CAISSON DISEASE.—Divers and others who work in compressed air suffer from serious symptoms on leaving the caisson too quickly. The effects are pains in the limbs, which may be sudden and paroxysmal, pain in the abdomen, vomiting, tenderness in the legs, auditory vertigo, tinnitus, deafness, occasionally epistaxis, syncope, or an apoplectiform attack. In fatal cases the soft nervous tissues have been found to be the seat of hæmorrhage, softening, and laceration. The symptoms are believed to be due to the sudden escape of air from the blood into the tissues when the pressure is reduced, and prompt recompression is recommended for their treatment. They may be prevented by slow and gradual release of the workmen through valved chambers, in

which the pressure is gradually reduced before the men reach the outer air.

CALLOSITIES.—Corns and callosities are formed by thickening of the epidermis from pressure, as on the soles of the feet or the palms of the hands of workers. Corns have a central core which penetrates to the true skin, and is a source of pain when pressed upon. The thickened epidermis is softened by water, and may then be removed by scraping or rasping. It is a mistake to rasp or cut corns without wetting them first. Friction of the feet, which makes them sore, may be prevented by the use of grease of any kind, and should be applied to tender feet before the socks are put on. Lanoline ointment is the best, but any pure fat will answer the purpose. Dusting powders of talc, French chalk, or boric acid, or combinations of these dusted into the boots also prevent friction, but are less effective. Rubbing with spirit hardens tender skin, but should be applied at night, when the skin can be allowed to rest before being subjected to fresh disturbance.

CAMMIDGE'S REACTION.—This somewhat complicated procedure is a sign of active inflammatory disease of the pancreas. It is often absent in pancreatic cancer, and when present probably points to a coexistent inflammation. The urine must be freed from all trace of sugar, and the test is a modification of the phenylhydrazin method of looking for sugar, the resulting crystals being slender needles of the osazone type.

(Forty c.c. of thoroughly filtered acid urine are mixed with 2 c.c. of strong hydrochloric acid, and gently boiled for ten minutes; then cooled in a stream of water, and made up to 40 c.c. with cold distilled water. Then neutralized with 8 grammes of lead carbonate, cooled again in running water, and well filtered. The filtrate shaken with 8 grammes of powdered tribasic lead acetate,

filtered until quite clear, and the lead precipitated by sulphuretted hydrogen or powdered sodium sulphate. The precipitate is removed by filtration, and 10 c.c. made up to 17 c.c. with distilled water. To this is added 0·8 gramme of phenylhydrazin hydrochlorate, 2 grammes of sodium acetate, and 1 c.c. of 50 per cent. acetic acid; boiled on a sand-bath for ten minutes, filtered hot into a test-tube provided with a 15 c.c. mark. If it falls short of this, the amount must be made up with hot distilled water. In the course of a few hours, but sometimes longer, a precipitate of long light-yellowish sheaves of crystals may be seen with the microscope; if well marked, pancreatic inflammation is present.)

CARIES.—This is an inflammatory disintegration of bone analogous to ulceration of soft parts. The bone softens, breaks down into cavities, and discharges a brownish pus. It may attack any bone as the result of injury, but more often is the consequence of tuberculous or syphilitic disease. Its treatment is by free incision, if necessary, to secure drainage, and scraping or gouging away the disintegrated bone.

Dental caries is the same process attacking the teeth, either in consequence of destruction of the enamel or by recession of the margin of the gums, so that the vulnerable dentine is exposed to the attacks of microbes. Much discussion has taken place as to the factors that determine this process which makes such ravages among the urban population. Among the causes cited are want of oral cleanliness, the use of soft starchy food, excess of sugar, the vitiation of the saliva during pregnancy or in general diseases such as typhoid fever and tuberculosis, or by gout, rheumatism, and diabetes, in which the saliva is strongly acid from the presence of lactic acid, while the abuse of alkalies in tooth powders and digestive remedies is blamed by Dr. Pickerill, who regards the health of the

teeth as primarily dependent upon the free flow of saliva, which may be rendered viscid by alcohol, tobacco, and sugar, and diminished in amount by tea, bread-and-butter, and alkalies, a vicious circle being completed by the effect of oral sepsis to still further depress the function of the salivary glands. He recommends the more liberal use of weak organic acids such as the juice of lemons and oranges.

Not only should carious teeth be removed or stopped in order to break this vicious circle, but overcrowding of teeth should be prevented, or room afforded by extracting a molar from each jaw. The need for skilled attention to the teeth is becoming better appreciated, but there are radical mistakes in the dietetic habits of the people which cannot be easily corrected.

CARPOPEDAL SPASM (see **Tetany**).—In laryngismus stridulus and other convulsive disorders the hands and feet are flexed, the thumb drawn across the palm, and the great toe forcibly adducted. It may also occur in diarrhœa or in other disorders of the alimentary system.

CATALEPSY (see **Lethargy**).—In catalepsy there is remarkable rigidity, the body being all of one piece, so that if supported at each end it will remain extended; the respiration is shallow and the pulse slow and feeble, but neither is completely abolished, and the other signs of death are wanting. As catalepsy may persist for days, it is believed to have been mistaken for death, and popular stories assert that such cases have been buried alive.

It is characteristic of catalepsy that the limbs will retain any position in which they are placed.

Cataleptic subjects are generally females. The cause is usually some emotion, such as fright; they generally show other hysterical or nervous phenomena. It may be associated with insanity or epilepsy, or with the condition

called "ecstasy," in which the patient assumes the attitude of prayer, or supplication, or adoration, and may be exhibited in connection with religious or erotic mania.

CATARRH.—See **Coryza.**

CAVERNOUS BREATHING, AMPHORIC BREATHING.—The breath sounds heard over a large cavity in the lung or a pneumothorax communicating with a bronchus. The sound is compared to that made by blowing over the mouth of a large jar.

CELLULITIS.—Inflammation of the cellular or areolar tissue by which the interstices of the body are packed is called "cellulitis," qualified by various adjectives as to extent or locality. Diffuse cellulitis is a complication of erysipelas (*q.v.*), but "pelvic" and "orbital" refer to the situation. The former is important as a common result of extension of infection from the vagina, uterus, and tubes; septic, gonorrhœal, or tuberculous. It gives rise to local pain, vomiting, and fever, with abdominal distension, and frequently diarrhœa. Micturition may be painful; the legs are generally drawn up, and the patient lies on her back. In the acute stages hot fomentations and morphine are required to relieve the pain, but surgical treatment by abdominal section is almost inevitable in order to remove the tubes, which are otherwise a persistent source of recurrent attacks.

Orbital cellulitis may be the consequence of local injury, but is more often seen in toxæmic conditions, such as the puerperal state, scarlatina, suppurative meningitis, or in association with local disease of the orbit, syphilitic or tuberculous. The eyelids become red and swollen, the eyeball protruded and fixed; suppuration may invade the globe. In the early stages poultices or hot fomentations may be used, but when pus has formed it should be promptly let out and the orbit drained.

CEREBELLAR GAIT.—See **Gait, Cerebellar.**

CERVICAL RIBS.—It has been long known that occasionally two ribs are carried by the seventh cervical vertebra, but in most cases they give rise to no symptoms. When they do, these show themselves between the fifteenth and twenty-fifth years, but are occasionally present in childhood, or may develop late in life in consequence of senile changes. Women suffer more often than men. The symptoms are usually unilateral, and generally on the right side. They are the result of pressure on blood-vessels or nerves. Weakening of the radial pulse, more marked when the arm hangs down, thrombosis, gangrene of the finger-tips, œdema of the hand, coldness, tingling, neuralgia or paralysis of the arm, wasting of certain muscles, cramp or twitchings. The sympathetic nerve may be involved, causing narrowing of the palpebral fissure, contraction of the pupil, or sweating of the side of the head and face. The diagnosis is made by palpation or by radiography. The only treatment is by excising the rib.

CHALAZION. — Retention cysts of the Meibomian glands of the eyelids causing rounded swellings, varying in size from a hemp-seed to a hazel-nut, on the margins of the lids are called "chalazion." They may burst, but usually require incision, which should be made on the conjunctival aspect, and the contents removed with a sharp spoon. These cysts may recur, and the operation would have to be repeated. They are said to be particularly liable to develop in persons who suffer from constipation.

CHANCRE, CHANCROID.—The word "chancre" means an ulcer, but is now restricted to a venereal sore, which in its characteristic form, as described by John Hunter, is rounded with a depressed grey surface, raised edges, and

a hard base. It is the primary lesion of constitutional syphilis. Chancroid is applied to any venereal sore doubtfully syphilitic. The treatment in both cases should be dusting with calomel, and the internal administration of mercury or salvarsan.

CHANGE OF LIFE, (Menopause) (see **Menstruation**). —The cessation of menstruation in women at about the age of fifty is mentioned under Menstruation. It is the termination of the reproductive function, and is attended by atrophy of the uterus and its appendages. Certain nervous disturbances are not uncommon at this time, such as flushings, palpitations, perspirations, restlessness, impaired sleep, mental irritability, languors, and capricious appetite. These symptoms may persist more or less for a year or two, but on their disappearance health generally becomes solidly re-established, and, as is well known, the average expectation of life of women who have passed this period is better than that of men of the same age. But there is a risk attending it, for it is at this time that there is a liability to develop cancer of the breast or uterus. On the other hand, fibroid tumours of the uterus diminish in size or disappear after the activity of this organ has ceased.

CHARCOT'S JOINTS, NEURO-ARTHROPATHY. — In certain diseases of the spinal cord, chiefly in tabes dorsalis (locomotor ataxy, *q.v.*) and syringomyelia (*q.v.*), there may be a rapid painless disorganization of the joints, affecting usually the lower extremity (knee, hip) in tabes and the upper (shoulder, elbow) in syringomyelia. As a rule the affection comes on suddenly, but occasionally it has been preceded by pain, and not infrequently by a slight injury. The joint may swell or give way in walking, but the absence of pain is characteristic. The effusion is large, and extends to the surrounding tissues, the skin being tense and the superficial veins prominent; grating

may be felt, and the joint is abnormally mobile. Both absorption and overgrowth of bone occur, the former chiefly at the shoulder and hip, the latter at the knee and elbow. The overgrowth at the knee may be sufficient to constitute a form of osseous anchylosis, and render the limb fairly useful, but otherwise the result is a flail-joint.

In mild examples the effusion may disappear and recovery follow, or the condition may relapse, persist, or become worse. In the severe type the disorganization of the joint takes place with great rapidity. Suppuration never occurs, but spontaneous fracture of bones has happened. The prognosis, although in mild cases not hopeless, is always uncertain, and treatment can only be by rest and the use of splints, cases, or apparatus to support the joint.

CHARCOT-LEYDEN CRYSTALS.—In asthmatic sputa and some other conditions colourless slender crystals are found which stain with eosin, and are formed of two hexagonal pyramids joined by their opposed bases.

CHEIROPOMPHOLYX.—A bullous or vesicular affection of the hands and feet, attended by burning, sweating, and itching, which was called by Tilbury Fox "dysidrosis," because he believed it to originate in the sweat glands; but this theory was rejected by Jonathan Hutchinson, who gave it the name "cheiropompholyx," that has been generally adopted. In mild cases the sides of the digits are the seat of the vesicular eruption, which resembles boiled sago grains, but in more severe examples there are as well bullæ, 1 or 2 inches in diameter, filled with yellow serum in the palms of the hands. There is a good deal of itching and burning, but after a few days the eruption subsides, the exudation is absorbed, and desquamation follows. Atropine ointment has been used for it, but probably any simple dressing that allays the

itching and burning is sufficient, as the disease tends to a spontaneous cure.

CHEMOSIS.—By the term "chemosis" is implied an inflammatory or œdematous swelling of the conjunctiva around the cornea so as to project over its edge. It is a symptom met with in many ocular affections.

CHEST, PAIN IN THE (see **Pain on Breathing**).—Pain behind the breast-bone may be the result of disease in subjacent viscera, as in the heart, aorta, or pericardium, or of a foreign body or growth in the œsophagus, or disease in the mediastinum. Pain in the breast-bone itself is common in secondary syphilis, and is usually the result of a periosteal node that can be seen or felt. But pain in the chest is even more often *referred*, being dependent upon disease or disorder in some abdominal viscus, especially the stomach—*e.g.*, "heart-burn."

Pain in the side may be neuralgic or myalgic, or the precursor of an outbreak of herpes zoster. It may be due to fractured ribs or bone disease, and lastly to pleurisy, with or without pneumonia.

Pain radiating round the chest, causing a sense of constriction that may be very severe, is met with in all local lesions of the spinal cord, in tabes dorsalis, insular sclerosis, and myelitis, and has been aptly denominated *girdle pain.*

CHEYNE-STOKES RESPIRATION. — Under normal conditions the movements of respiration recur regularly, and although subject to acceleration or slowing by bodily movement, emotion, or the use of the voice, yet in repose they follow one another at a rate which averages fifteen or eighteen to the minute. Young infants when asleep afford an exception, as their breathing may be quite irregular, although they are in perfect health. If they are watched, it may be noticed that at times there is a

pause of some seconds, followed by six or seven rapid respirations; then the breathing resumes its regular rate, to be interrupted later on in the same manner. This is of no importance, but a similar phenomenon in disease is called "Cheyne-Stokes breathing," and at one time was held in great respect as a sign of impending death. In this condition, as in that described as occurring in infancy, there is a pause in the respiration, followed by a period of gradually accelerated and then retarded movements, terminating in another pause. The movements change not only in rate but in depth, becoming deepest when they are most rapid, and slowest when they are most shallow. This form of breathing is best seen when the patient is asleep or unconscious. The pulse may vary with the respirations, in some cases diminishing in rate, or even entirely disappearing during the pause, in others being quicker then. The pupil, too, may be contracted during the pause and dilated during the breathing, or uniformly contracted throughout.

While Cheyne-Stokes breathing is met with in such grave conditions as uræmia, chronic valvular and myocardial heart disease, in fatal cases of sunstroke, cerebral hæmorrhage, paralytic dementia, head injuries, and pneumonia, it may occur in healthy elderly persons during sleep after eating, and has been commonly observed in sick persons without any fatal consequences, so that it has lost any special prognostic significance that it once was supposed to possess.

It has been observed in typhoid fever, cholera, whooping-cough, diphtheria, and smallpox, in hæmorrhage following severe surgical operations, in the course of diarrhœa, and in the sleep induced by hypnotic drugs, as well as in the diseases already named.

The cause of the phenomenon must be sought in the respiratory centre, but its exact nature is unknown.

CHILBLAINS (see **Local Syncope**).—These painful swellings of the fingers, toes, ears, and nose, are very apt to occur in children, women, and some men during cold weather. The skin of the part burns, itches, turns a dusky red, and shines; a blister may form, which bursts, leaving an ulcer, and in some instances gangrene may result.

They are often said to be connected with debility or a poor circulation, but they occur in persons who are otherwise strong, while those with heart affections do not suffer specially from them. They are thought by some to be a minor form of frost-bite, but they occur from much slighter degrees of cold, in this showing an analogy with local syncope and Raynaud's disease. The result of treatment suggests that they depend upon a sluggish capillary circulation, the consequence of defect in the blood plasma.

The improvement that follows treatment by the administration of calcium chloride or lactate (10 grains three times a day for two days) supports this view. In the early stages the swellings should be painted with a liniment composed of equal parts of belladonna liniment and collodion, or aconite and belladonna liniments, of each 1 part, and collodion 2 parts. Painting with tincture of iodine is also useful. Rubber overshoes should be worn with woollen socks and gloves, while boots or shoes should be easy. It is recommended that the feet and hands should be bathed in hot mustard and water, or socks and stockings soaked in equal parts of tincture of capsicum and eau-de-Cologne. Friction with a flesh-brush is of service. Regular exercise should not be neglected, and the bowels should be kept open.

CHLOROMA.—Greenish sarcomatous tumours growing from the bones of the skull or face around the orbit, which may give rise to secondary infection of other

organs, are called "chloroma," on account of their colour, which on section post-mortem may be as green as grass, but more usually are a yellowish or brownish green; there may be greenish deposits in the conjunctivæ. The patients are always intensely anæmic, and their blood shows a moderate degree of lymphatic leukæmia. On exposure to the air the colour of the growth fades rapidly, and cannot be preserved. Its origin is unknown, but it has been proved to be neither putrefactive, bacterial, nor biliary, but it is supposed to be some modification of blood-colouring matter. These growths are often associated with albumosuria, deafness, and swelling of the gums. The disease is always fatal.

CHOLERA.—An acute specific enteritis, endemic in Lower Bengal, extending in epidemics over wide areas of the globe. It is caused by a specific microbe, Koch's comma bacillus, which swarms in the stools, and is the means of communicating the disease by water, uncooked food, and unwashed hands, but not by the air. The incubation period is short, but previous to the onset, which is abrupt and violent, there is usually a premonitory diarrhœa overlooked or neglected. The attack begins by violent purging with colicky pains, vomiting, cramps in the muscles of the calves, coldness of the extremities, pinched features, sunken eyes, cyanosis, rapid weak pulse, and subnormal temperature. The stools are at first fæcal, soon becoming watery, colourless, turbid, containing white flakes of desquamated intestinal epithelium (rice-water stools), the tongue is shrunken, pointed, and pale, the breath cool, the finger-tips shrivelled, the urine suppressed, and death often follows from collapse within twenty-four hours. If reaction occurs, the pulse returns, the surface becomes warmer, the temperature rises above normal; but the vomiting and purging may be renewed, and the urine is scanty and albuminous,

recovery being by no means assured, death occurring from exhaustion within three or four days. The preventive treatment in endemic areas, or where the disease is epidemic, is by the use of no water that has not been boiled and no food—*e.g.*, fruit, salad—that has not been cooked. Haffkine's protective inoculation affords immunity for about a year. All cases of diarrhœa, however slight, should be sought out and treated. Removal from the place in which the disease has broken out is desirable. All linen and utensils that have been contaminated should be carefully disinfected by boiling. In the attack a mustard pack (a sheet wrung out of hot mustard and water wrapped round the patient) may help to bring about a reaction. Drugs given by the mouth are not often retained, but 25 drops of Collis-Browne's chlorodyne should be tried, and if it is vomited $\frac{1}{3}$ grain of morphine should be injected under the skin. Hot barley water, rice water, or lemon water, may be given to relieve thirst, and normal saline may be run into the veins. A mixture of weak sulphuric acid (10 minims of dilute sulphuric acid to the ounce), flavoured with tincture of lemon or orange, or added to unsweetened lemonade, should be given every hour as an astringent to check the premonitory diarrhœa, and later if it can be retained. When any nourishment can be taken, this should be at first of the simplest kind—water-arrowroot flavoured with a little brandy, milk whey, weak tea, chicken broth, or chicken jelly; as the stomach shows its tolerance of food, advancing gradually to milk puddings, pounded meats, purées of vegetables, and sieved fruit.

CHOREA.—Chorea consists of irregular, non-rhythmic, clonic contractions affecting the muscles of the face, arm, and leg on one or both sides; the movements cease during sleep. In some cases there is marked weakness and wasting of the muscles of the trunk, impaired general

sensation, and dimness of vision. It is most common in females and in early life. It may supervene at puberty or during pregnancy, and bears a definite but not altogether explained relation to rheumatism and rheumatic heart affections. The disease lasts from six weeks to three months, and should be treated by rest in bed, or its duration is indefinite. The prognosis is good if the movements do not interfere with sleep and taking food. Arsenic is the orthodox remedy. This form of chorea is called "chorea minor" or "chorea anglorum."

The types called **electric chorea, chorea magna,** and **epidemic chorea,** are none of them true chorea, but manifestations of exaggerated hysteria.

Senile chorea is an affection of old age, wrongly confounded with paralysis agitans and senile tremor. The movements are co-ordinated, but involuntary, the same action being constantly repeated.

Huntington's chorea is a rare hereditary disease, which runs in families, affects males and females equally, comes on in middle life (thirty to fifty), and persists till death. There is always some mental weakness, which takes the form of progressive dementia. In the first stage there is some irritability, but later on merely apathy. There is no regular cause for the disease, but emotion and excitement are often alleged. The movements resemble those of true chorea (chorea minor); they cease in sleep, and are increased by emotion, but are to some extent under control, as the patient may be able to thread a needle. The gait is irregular, with freqeunt stops. Sensation is normal; the heart is unaffected.

CHVOSTEK'S SYMPTOM.—See **Tetany.**

CHYLURIA.—The passage of urine that resembles discoloured milk is rare in this country. It is sometimes due

to the presence of a large quantity of amorphous alkaline earthy phosphates which are insoluble, instead of the normal acid phosphates which are soluble. The difference is slight and the matter of little importance, but it is often associated with debility (see Neurasthenia). But chyluria is not this turbidity of the freshly passed urine, nor that which is seen only when the urine has cooled, from the precipitation of urates of sodium potassium and calcium, generally reddish or yellow, but occasionally whitish, for these are normal constituents of the urine, and their precipitation depends upon the urine being concentrated.

Chyluria is due to the admixture of the milk-like contents of the chyle vessels with the urine. It is not improper to compare it to milk, for like that fluid it is an emulsion of fat, to which it owes its colour and opacity, but it is never so white as milk.

Chyluria is always due to the rupture of dilated chyle or lymph vessels into the urinary passages in consequence of obstruction. When it occurs in this country and is not imported, it is usually caused by tuberculous disease of the receptaculum chyli, by pressure of abdominal tumours, or from an attempt to conceal pregnancy by tight lacing. The fluid from the lacteals is forced back into the lymphatics, so that they dilate and rupture into the bladder with consequent chyluria.

In tropical countries chyluria is more common on account of the prevalence of the parasite *Filaria sanguinis hominis* or other forms of filaria, as the parent worm seats itself in a lymphatic trunk, giving rise to obstruction, and causing not only chyluria, but elephantiasis or lymphatic hypertrophy of the legs or scrotum.

Chyluria as we see it in this country can only be treated successfully if the cause of obstruction can be removed (see Elephantiasis).

CLAUDICATION, INTERMITTENT. — Intermittent claudication or lameness is a symptom of arterio-sclerosis. The patient, usually a man forty to fifty years of age, most commonly belonging to the well-to-do classes, complains of pain in the legs brought on by walking. The limbs become cold, pale, and cyanosed, or may be red and hot, and the patient is obliged to rest. The pulse in the anterior and posterior tibials is extremely small or absent. Exposure to cold is a powerful exciting cause of attacks. The abuse of tobacco is blamed by some. The symptom is especially prevalent in Russia.

CLAW-FOOT (Griffe pied creux).—A congenital deformity of the foot is caused by over-extension of the first phalanges of the toes, atrophy and paralysis of the adductors and short flexor of the great toe, with tonic contraction of the flexors of the distal phalanges, so that they form a claw. There is also generally an increased curve of the plantar arch.

CLAW-HAND (Main en griffe).—In certain degenerative conditions of the spinal cord, where there is spastic paralysis involving one or both hands, these may assume the deformity called claw-hand or *main en griffe*, the wrist being over-extended, the first phalanges of the fingers extended, and the second and third flexed, so that the hand has the appearance of a claw. It is a permanent condition, the result of organic changes in the nervous centres.

CLUBBING OF FINGERS, HIPPOCRATIC FINGERS.—In many chronic affections of the heart and lungs the fingers, and less commonly the toes, undergo a cyanotic enlargement affecting their terminal phalanges, the nails of which are correspondingly enlarged and incurved. It is met with most commonly in congenital heart disease, in chronic phthisis, bronchiectasis, and old empyema,

occasionally in association with aneurism or with growths in the lung.

An exaggerated form has been described as " pulmonary hypertrophic osteo-arthropathy " (Marie), in which not only the bones of the digits, but those of the legs and feet, forearms and hands hypertrophy, somewhat like the condition seen in acromegaly, with which it is apt to be confounded.

CLUB - FOOT (Talipes). — This deformity may be (*a*) congenital, (*b*) acquired. The chief cause of the *congenital* condition is malposition of the fœtus in the uterus, where one foot may be jammed into a position where its proper development is arrested. The foot is drawn up by the heel and inverted or everted, forming talipes equino-varus or talipes calcaneo-valgus. Treatment by early division of tendons, suitable splints, massage and electricity, effects great improvement in these cases.

The *acquired* form is due chiefly to infantile or spastic paralysis (see Paralysis), to fractures of bones, severance of tendons, and contraction of the cicatrices of extensive burns or scalds. The deformity varies. In talipes varus the foot is inverted; in talipes valgus everted; in calcaneo-varus drawn up by the heel and inverted; in calcaneo-valgus drawn up by the heel but everted; in talipes arcuatus and pes cavus the sole of the foot is arched or hollowed; in flat-foot (*q.v.*) the arch has given way and the sole is flat. These deformities are due to paralysis of certain muscles and the over-action of their opponents, or to spastic muscular contraction, or to relaxation of ligaments and softening of bones. The treatment is more difficult, but remarkable results have been obtained by transplantation of tendons so as to change the direction of their muscular action, thereby supplementing paralyzed muscles and opposing those that are over-acting.

COGWHEEL RESPIRATION.—The inspiratory murmur may be wavy, jerky, or interrupted from nervous causes, but more often from delayed entrance of air into the bronchi from catarrhal obstruction. It has no specific significance, although it is often noticed in early tubercular infiltration, as it occurs, too, in bronchitis. Consolidation of the lung may transmit the heart's impulse so as to break up the sound into a series of jerks.

COLIC.—This is a term applied to spasmodic pain originating in several hollow viscera, but it originally implied cramp of the large bowel. Now we speak of intestinal colic, renal colic, biliary colic, and pancreatic colic, each of which requires separate description.

Intestinal Colic, according to Hertz, is caused by overdistension of some part of the alimentary canal, and is usually associated with flatulence and constipation. It is commonly due to an attack of acute indigestion following a copious meal of imperfectly masticated food. The pain is described as griping, tearing, or twisting, and it is characteristic that it shifts about and is relieved by deep pressure, although there may be some superficial tenderness. There is no rise of temperature or pulse-rate, and the facial expression suggests pain, but not collapse; the cheeks are usually flushed, and efforts are made to expel flatus from the mouth and anus. Vomiting may occur, and the rejection of some part of the undigested meal is followed by partial relief. A copious evacuation of the bowels, either spontaneous or as the result of remedies, is more effectual. Mild cases yield to the administration of ginger, peppermint, brandy, and similar antispasmodics. A large enema of turpentine and castor oil should be given in severe and obstinate cases, but an ounce of castor oil with 20 minims of tincture of opium is a common remedy which has stood the test of time and is usually sufficient. It is better to abstain from

food during the attack, but the patient should be encouraged to drink hot water copiously, this simple remedy being often able to remove all discomfort.

The importance of colic is that the pain may be the result of a hernia, so that all the hernial openings should be examined, or of intestinal obstruction or of lead-poisoning (see Plumbism). All these possibilities must be kept in mind and excluded.

Hot applications to the abdomen, such as flannel wrung out of hot water and sprinkled with turpentine, afford comfort, and do no harm, whatever the cause of the attack.

Renal Colic is the pain induced by the passage of a stone along the ureter. The pain is excruciating, and is usually associated with tenderness over the kidney and loin. The urine generally contains blood. Vomiting is common. The attack may come on suddenly after an effort of some kind or a blow or fall. Relief should take the form of hot applications to the abdomen and loin and the hypodermic injection of $\frac{1}{3}$ grain of morphia. Dietl's crises are caused by the twisting of the pedicle of a mobile kidney, and resemble renal colic; but the urine does not contain blood, and the kidney, when palpation is possible, will be found to be movable. The pain generally subsides when the patient is put to bed, but hot fomentations and morphine, if used when the diagnosis is in doubt, afford relief and do no harm. After the attack is over, the kidney should be secured by a belt, or by the more effectual means of nephropexy, the surgical technique of which is now well understood, and the operation is highly successful in the hands of an experienced surgeon.

Biliary Colic should be caused by the attempt of a gall-stone to pass along the cystic duct, but pain due to inflammation of the gall-bladder (cholecystitis) is frequently confounded with it. The pain is below the right

costal arch, or over the tenth, eleventh, and twelfth dorsal vertebræ; there is tenderness over the gall-bladder, which may be distended and palpable. Jaundice may follow the attack if the stone causes obstruction of the common bile duct, but this may not occur, either because the stone falls back into the gall-bladder, or because a stone large enough to cause pain in passing along the narrow cystic duct may not be able to block the opening of the common bile duct. Hot applications and morphine are here, too, the most efficient means of giving relief.

Pancreatic Colic often occurs in individuals who have suffered previously from attacks of gall-stones or cholecystitis, and as the cause is the passage of a pancreatic calculus along the duct of this gland, it may give rise to jaundice by obstructing the opening of the common duct, so that the two conditions are apt to be confounded. The presence of fatty stools may afford assistance in their differentiation. The pain is generally localized between the ensiform cartilage and the umbilicus, in the left hypogastrium, or in the back, with tenderness over the second and third lumbar vertebræ, or on *deep pressure* in the epigastrium. There may be transitory glycosuria or a positive Cammidge's reaction. The treatment does not differ from that of biliary colic.

COLLAPSE.—The condition that follows any shock, loss of blood, severe pain, fright, sunstroke, an overwhelming dose of pathogenic toxin or inorganic poison, is marked by reduction of all vital phenomena. The patient is pale; pulse and respiration are feeble; the surface of the body is cool, often covered with sweat; the extremities are cold, the eyes sunken, the nose pinched, the fingers blue and shrunken, the lips pale, and consciousness may be lost. This is called "collapse," or the breaking down of the vital forces. By means of warmth to the surface of the body, of stimulants, such

as a hypodermic injection of 10 c.c. of camphorated oil (camphor 1 part, paroleine 10 parts), or a dose of brandy or spirit of ammonia, administered by the mouth, followed by warm drinks—*e.g.*, soup, bouillon, beef-tea, tea, or coffee—with remedies appropriate to the etiological factor, vitality may be restored. In loss of blood a hypodermic injection of morphine, or in sunstroke ice to the head, may be the best treatment to pursue.

The prognosis depends upon the circumstances of each case, the previous condition of the patient, the degree and nature of the exciting cause, and the probability of its recurrence, the evidence of reviving force, and the absence of complications.

COLOUR-BLINDNESS.—The perception of colours is not a function shared equally by all parts of the retina; it is absent from the periphery, which sees everything as grey, or recognizes only black and white, the middle of the spectrum (yellow-green) looking light, and the two extremities dark. Within the peripheral zone is that for green, then red, and in the centre blue or violet.

Colour-blindness implies the loss of the perception of colours either wholly or in part, and may be congenital or acquired.

Complete colour-blindness (achromatopsia), in which everything looks grey, and a picture has the appearance of an engraving, is rare. Partial colour-blindness is more common, when the patient sees everything blue, green, or red. When colour-blindness is associated with diminished acuity of vision, it is called "dyschromatopsia," and this is usually a characteristic of the acquired forms, which may be the consequence of brain or nerve disease, or of the action of poisons, such as quinine, caffeine, ergot, or salicylate of soda, which affect the peripheral zone only. The affection may involve successively all the zones in general nervous disease, hysteria, epilepsy, and hypno-

tism, or be associated with central scotoma from the action of tobacco, bisulphide of carbon, lead, alcohol, or in diabetes and disseminated sclerosis.

Congenital colour-blindness is hereditary, and occurs almost exclusively in males.

Colour ignorance is seldom met with except among boys of the lowest class, and depends solely on want of knowledge of the names of colours.

The detection of colour-blindness is of great importance, owing to the use of coloured lights for signals in transport service on sea and land. The usual method is by asking the examinee to match skeins of coloured wool, but this has been sharply criticized, and it would appear more useful to test by means of coloured lamps and flags exposed for short periods.

COMA.—Persistent loss of consciousness without failure of the circulation or respiration, so that the patient is in a condition resembling deep sleep, from which he cannot be fully aroused, is called "coma."

Coma vigil is a variety in which the eyes are open, the patient may speak or mutter, move his limbs or body, but remain throughout unconscious.

Coma occurs from injuries to the head, concussion, compression, cerebral hæmorrhage, or may succeed an epileptic fit or be caused by the toxins of fevers, notably in typhus, typhoid, and influenza, or by uræmic or diabetic poisoning, or from the effects of opium.

The significance of the symptom is that the functions of the cerebrum are temporarily abolished. The prognosis depends upon the cause being removed or removable. Coma caused by concussion or an attack of epilepsy usually passes into sleep, from which the patient awakes. The coma of fevers ends with the subsidence of the severity of the fever process. It is so usual in typhus that it does not increase the gravity of the prognosis; in

typhoid it indicates a dangerous attack; but in influenza, although it is uncommon, it is often a fatal complication. Uræmic coma from acute nephritis, especially in children, often passes off; in adults, and particularly with chronic nephritis, the prospect is distinctly unfavourable, but not hopeless. In diabetic coma few recoveries have been recorded. Opium-poisoning which has reached the stage of coma is almost uniformly fatal.

CONJUGATE DEVIATION.—In certain cases of hemiplegia (*q.v.*) the eyes are drawn so that the patient appears to be looking at the paralyzed side, or at the opposite side. As a rule, when a hæmorrhage has taken place into the internal capsule of one side, the limbs on the opposite side of the body are paralyzed, and this one-sided paralysis is shared temporarily by the muscles of the eyeballs, so that the eyes are directed towards the sound limbs by the unopposed action of the ocular muscles on that side. Less commonly the result is irritative or spasmodic, the eyes being drawn towards the paralyzed side. In both cases the condition generally passes off early. When the hæmorrhage has happened in the lower part of the pons, it will catch the decussated fibres coming from the cortex, and also the direct fibres from the nuclei of the fourth and sixth nerves, so that there is "crossed paralysis." The results are variable; the external rectus alone may be paralyzed.

Conjugate deviation may occur in hemianopsia from the blind side of the retina having lost its visual stimulus. In addition to hæmorrhage, this symptom may be present in meningitis and cerebral tumour.

CONJUNCTIVITIS.—Inflammation of the mucous membrane which covers the eyeball and lines the eyelids may be catarrhal or part of a general infection, or be caused by the local inoculation of a specific organism, as in diphtheritic (see Diphtheria) or gonococcal (see Gonorrhœa)

conjunctivitis. The symptoms are injection of the mucous membrane, increased mucous or muco-purulent secretion, pain, burning, photophobia, lacrimation, and in severe cases chemosis (*q.v.*). Simple catarrhal conjunctivitis is cured readily by a weak lotion of sulphate of zinc (1 grain to the ounce), or a weak ointment (2 per cent.) of yellow oxide of mercury. The treatment of the specific forms is given under those conditions.

CONSTIPATION.—Recent radiographic observations have shown that delay in the passage of food residues through the alimentary canal occurs solely in the colon, except where there is some mechanical obstruction in the small gut, such as a hernia, twist, or growth. The cause of delay in the colon may be atony of the whole length of the bowel, or much more commonly atony of the pelvic colon and rectum. These two forms can only be differentiated with certainty by a radiographic examination of the bowel after a bismuth meal. Hertz has proved that the meal reaches the cæcum in five or six hours, but takes the rest of the twenty-four hours to attain to the rectal pouch. In atony of the whole colon the bismuth can be seen at the end of twenty-four hours occupying its entire length. This occurs for the most part in asthenic persons, chiefly in elderly women of sedentary habits, but is common in old persons of both sexes. Atony of the pelvic colon and rectum is the usual form of constipation in young persons—above all, in girls—and is largely due to neglect to attend to the call to defæcate, so that the habit is lost, and the bowel fails to respond to the normal stimulus of the presence of fæces. In the treatment of constipation it is most necessary to endeavour to restore the proper habit by diet and drugs, but especially by regularity in endeavouring to get a daily action at a fixed time. It is useless to allow the bowel to remain unmoved for two or three days, and then get an action

by drugs or other means. This only leads to continued and increasing weakening of the bowel, but is too often the method followed by constipated persons, who will not take the trouble to persevere, or entertain the mistaken notion that harm will result from taking medicine every day.

Constipation is the common result of civilized urban life, which means a minimum of exercise and a too refined diet. Cellulose is the normal constituent of food that gives bulk to the residue and stimulates the activity of the colon, but all our efforts seem to be directed to the elimination of this useful element of diet. Our bread is too fine, green vegetables and fruit are not eaten regularly, while tea containing a large proportion of astringent tannin is used more and more by the bulk of the population as a regular beverage at all meals. Attention to these details would lessen the prevalence of this troublesome disorder. Porridge made of coarse oatmeal, brown bread, salads of lettuce, tomatoes and celery, if taken daily, would supply a sufficiency of cellulose. China tea contains considerably less tannin than the teas of India or Ceylon, but very constipated persons should give up tea, and drink hot water, milk and hot water, cocoa, or coffee. Red wine is not much drunk in this country, but is injurious to constipated persons from its astringency. The use of the Japanese seaweed agar-agar has been largely adopted as a substitute for cellulose, as it is not digested and acts in the same mechanical manner. Various preparations of this substance are sold as laxatives under trade names. Regulin is one of them, and is said to be strengthened in its action by the addition of a small quantity of cascara. Liquid paraffin is another purely mechanical drug which keeps the fæces soft, and thus favours their transit, but it sometimes causes inconvenience by escaping from the anus and soiling the linen. Enemata of soap and water or gruel act by provoking the evacuation of

the rectum and pelvic colon, and are useful where this is desirable, as in the case of persons confined to bed by illness, where want of exercise causes constipation, and it is undesirable to give laxatives or purgatives by the mouth, but they are not suitable for regular use. An enema of ½ ounce of glycerine, given by means of a vulcanite syringe, is effectual, but in some persons causes pain or soreness. The best drug to stimulate the whole length of the colon is senna, especially a cold infusion of senna pods. Six, eight, ten, or more pods should be infused in 5 or 6 ounces of cold water for ten or twelve hours, and taken daily at bedtime or on waking. This produces a soft, easy motion with great certainty. There are many preparations of senna sold in the shops as official or proprietary remedies.

Most of the other laxatives act on the pelvic colon and rectum. Among the best are the simple salines given as mineral water or as powder dissolved in hot or cold water. Phosphate of soda, sodium-potassium tartrate (Rochelle salt), sulphate of soda (Carlsbad salt), sulphate of magnesia (Epsom salt), many of which can be purchased in effervescing form, are pleasant to take and efficient; but neurotic, asthenic persons find them what they call "lowering," and get on better with vegetable preparations, such as senna or cascara.

Aged persons suffer much from constipation. Equal parts of glycerine and castor oil form a useful laxative for these cases; one or two teaspoonfuls may be taken either at night or morning. A mixture of paraffin and honey, sold under the trade name of "Laxamel," is a pleasant and mild laxative, but may require to be taken several times a day in order to obtain any good effect.

Cascara, especially cascara evacuant, as prepared by Parke, Davis and Co., is an excellent laxative, which may be added to any mixture that the patient may have to take for other reasons.

CONTUSION.—The effect of a blow or pressure on the skin is to rupture bloodvessels, the extravasated blood making its way rapidly into any part where the skin is loose, as for example in the eyelids. Elsewhere this happens more slowly, but ultimately the blood finds its way to the surface, giving rise to more or less swelling, with purplish or black discoloration, gradually fading to a greenish brown and yellow, and finally disappearing. There are individual differences in the amount of pressure needed to cause this extravasation of blood, women being usually more easily bruised than men, and this reaching an extreme degree in so-called " bleeders " (see Bleeders), in whom a moderate injury may cause an extensive subcutaneous extravasation of blood, or hæmatoma (*q.v.*). A " black eye " is a familiar form of the result of contusion. The application of an ice-bag may restrain the bleeding and prevent the extravasation getting worse, but cannot remove that which has already taken place. It will be absorbed in time, but vinegar and brown paper, or a piece of raw beef, can only act by their coldness, and are less efficient than an ice-bag.

CONVULSION.—This has been defined as a violent agitation of all the limbs or of a part of the body, marked by contraction and relaxation of the muscles, taking place independently of the will. Thus the convulsion may be general, as in epilepsy, or partial, affecting the face and eyes only, or with one hand and arm, as occurs sometimes in infantile convulsions. It is associated with loss of consciousness in the foregoing examples, but there may be complete preservation of intelligence in tetanus with general convulsions, or in cramps or spasms of particular groups of muscles—for example, in writer's cramp.

Convulsions are due to the liberated energy of a part of the nervous system. This may be the consequence of removal of the controlling influence, such as we see when

a chicken's head is cut off and the body of the decapitated bird is thrown into violent spasms which carry it all about the yard for the next minute or two. But where the controlling centre is intact, the convulsion may be caused by the excessive local stimulus, which may be structural or toxic. The irritation of a local inflammatory lesion, a growth, or mechanical injury from pressure or disturbance by a fragment of fractured bone, may illustrate the first, while the action of strychnine on the spinal cord is an example of the second.

Minor degrees of convulsion are usually called "muscular twitchings"; they are seen in chorea and neurasthenia.

When spasm of the muscles of the limbs, trunk, or face takes the form of a steady contraction, it is called "tonic," but where it is jerking and there is an alternation of contraction and relaxation, it is called "clonic." In epilepsy and other forms of general convulsion these two kinds of spasm form successive phases of the fit, which begins with a tonic spasm, and passes into clonic spasms, that are at first rapid and violent, but become slower and weaker, until the fit ends with general relaxation of all the muscles, including the sphincters.

Infantile Convulsions, which are general or partial, and are attended by loss of consciousness, are not uncommon, but they may be due to nothing more serious than disorder of digestion. In such cases simplification of the food, regularity in feeding, and perhaps ½ grain of calomel or grey powder, are all that is required. If the attacks do not recur, no anxiety need be felt. It is commonly said that convulsions are caused by teething, but this is a convenient cloak for ignorance, and its acceptance tends to obscure the true cause, which may be improper feeding or something more serious. Rickety children are more liable to suffer from convulsions, but their condition is the result of bad feeding (see Rickets). Where con-

vulsions do not cease after the digestion and bowels have been put right, other causes must be sought for. Worms, either thread-worms or round-worms, are a frequent source, and in the absence of direct evidence no harm will come from giving a vermifuge, such as 5 grains of santonin with 5 grains of scammony resin in powder. A single dose is sufficient, and the stools should be carefully examined.

A single convulsive attack in young children is often the prelude of some acute infection, such as measles, but the sequel soon clears up these cases.

Meningitis, tubercular or meningococcal, may be the cause of convulsions, but the rise of temperature and pulse, the persistence of squinting, the absence of any recovery in the interval between the attacks and the frequency of vomiting, all help to establish the diagnosis; but there is reason for being cautious at first, and all cases of convulsions in infancy should be watched carefully.

Perhaps the fear most present to the mind of the parents is that the child may be or may become epileptic; but in the absence of any family history pointing to this disease we are justified in reassuring them, for true epilepsy rarely begins in infancy, and only an insignificant percentage of the infants who suffer from convulsions during the period of the first dentition become eventually epileptic.

Where the attacks of convulsion persist in spite of judicious treatment, and there is no acute condition (meningitis) to account for them, it is more probable that there is an intracranial growth of some kind, especially a tuberculous deposit. Such a growth may cause double optic neuritis or blindness without any ophthalmoscopic appearances.

Localized convulsions involving certain groups of muscles are called **Jacksonian epilepsy**. They are rare,

but when they occur they are of considerable diagnostic importance, as they point to a lesion in the cortical motor area in the neighbourhood of the fissure of Rolando, and by thus localizing the lesion afford a possibility of successful surgical intervention. Convulsions of this type may become generalized, but they always begin by movements affecting a certain group of muscles in a definite order, the only exception being those fits that begin with the movements of the fingers and thumb, as these do not possess any definite localizing value. Jacksonian epilepsy is usually caused by a growth, but may be due to adhesions of the membranes consecutive to an attack of meningitis.

Para-Myoclonus Multiplex is a chronic nervous affection involving all four limbs, and sometimes also the face and trunk, but never affecting the eyes. The symptoms are clonic spasms of the muscles, ceasing during voluntary movements or sleep. It is a family disease, males being especially liable; there is no wasting or anæsthesia; the deep reflexes are exaggerated. It is very chronic; recovery may occur, but it may relapse.

The treatment of true idiopathic epilepsy may be considered under the three headings of (1) hygiene, (2) diet, and (3) drugs.

A great advance has been made in the hygienic treatment of epilepsy by the establishment of farm colonies for paying patients as well as for those supported by the rates. The principles of open-air treatment are as applicable to epilepsy as to other disorders, and the improvement of general health that follows on the adoption of an active life in the open air is as beneficial to them as to other cases. The value of regular hours for sleeping, working, and eating is very great. The outdoor work that can be done on a farm is adaptable to each case, and makes them not only healthier, but happier. Cleanliness is, of course, essential, and where possible a daily douche bath should be taken by each patient. The diet should

be simple, consisting largely of vegetables, fruit, cereals, milk, butter, and eggs. One meal daily may contain a small portion of meat or fish, the latter being given the preference on at least two or three days in the week. Fat bacon may be allowed to those who cannot take eggs. Oatmeal porridge with milk, honey, jam, molasses, sweet cakes, biscuits, and similar dietetic accessories, should be permitted. Alcohol in all forms should be forbidden, but tea, coffee, or cocoa in moderate quantities may be allowed. Tobacco should be withheld from young persons or those whose circulation is feeble.

The drug that has best stood the test of time is bromide of potassium; next to this come the bromides of sodium and ammonium, and these three salts are often combined with benefit. Bromide of strontium is more expensive, and has no compensating advantage. As is now well known, the proper method in which to employ the bromides is to push the dose until the fits are controlled. The plan of giving a single large dose at bedtime is very convenient, and should be followed especially where the attacks are nocturnal, but its use is not to be limited to this group. The dose must be suited to the age of the patient, but 60 grains at bedtime is not too much for an adult, its increase or decrease being regulated in accordance with the result.

When the fits are controlled, the dose may be reduced, particularly if the patient shows drowsiness and depression of the circulation, dulness or apathy during the daytime. A bromide acneiform rash is disfiguring, but does not by itself indicate any interruption of the treatment, but arsenite of sodium, $\frac{1}{25}$ grain, should be added to each dose of the bromide. The state of the bowels must not be overlooked.

CORYZA.—Running from the eyes and nose, or coryza, is the most familiar symptom of a common cold in the

head, but it may also be the beginning of an attack of hay fever, influenza, measles, cerebro-spinal meningitis, infective sinusitis, or it may mark the earlier stages of acquired or congenital syphilis.

There is more or less itching or burning, congestion, and swelling of the conjunctival and nasal mucous membrane, while the inflammation may spread into the accessory sinuses, especially the frontal sinuses, causing oppression or aching across the brow, and into the naso-pharynx. The discharge is at first watery mucus, and is profuse, but after a day or two becomes less in quantity, more viscid and opaque, from the presence of catarrhal leucocytes.

Morning coryza (see Rhinorrhœa) is a troublesome affection to which some persons are subject on first opening their eyes after waking, and is due to the effect of light on sensitive conjunctivæ. Such persons often suffer from refractive defects and eye-strain, but it also points to a tendency to asthma, as they exhibit similar sensitiveness to dust, the pollen of plane-trees, and of grasses.

When coryza marks the initial stage of some specific disease, other symptoms follow in due course; but at first it may be impossible to recognize its significance, except that it may be unusually severe. If there is an epidemic in the neighbourhood, or there has been exposure to infection, it may be easy to guess what is going to happen, and in the case of measles the characteristic rash makes its appearance in twenty-four hours.

In cerebro-spinal meningitis characteristic symptoms are slow to develop, while the coryza may be slight, and the formidable nature of the disease not be declared until coma and paralysis supervene. The rash that has gained for it the name of "spotted fever" is a scanty crop of petechial spots on the lower part of the abdomen, which is often absent.

Infective sinusitis is a more intense and obstinate

coryza, which seats itself in the sinuses, and is characterized by persistent frontal aching. It subsides slowly, and is not readily treated. The sinuses are sometimes trephined in order to apply remedies directly to them, should spraying, insufflation or snuffing lotions or powders of boric acid and iodoform prove useless.

Syphilis, whether congenital or acquired, requires mercurial treatment, above all by a course of inunction.

COUGH is an explosive expiratory effort, more or less violent, brought about voluntarily or reflexly by irritation in some part of the respiratory passages, the pharynx, or the ear, or as a nervous habit originating in some former irritation, but persisting long after this has been removed or has disappeared. It is noisy because the glottis is at first closed and then opens suddenly, when the air from the lungs is forced through. Its natural object is the expulsion of the cause of the irritation, so that it is usually followed by expectoration of something; but nervous cough is characteristically dry. A " stomach cough " originates in the pharynx in consequence of the associated pharyngitis, and has a peculiar rough sound, due to the loose contraction of the relaxed pharyngeal muscles. Nervous cough consists of a single effort, although it may be repeated from time to time with monotonous regularity. Irritation of the nasal mucous membrane may provoke cough when caused by mechanical means, inflammation, or growths (polypi) in the nose. The presence of wax or a foreign body in the external auditory canal, or the introduction of an aural speculum, may cause violent coughing, and occasionally cough is due to the presence of wax or to some disease of this organ. Cough may be partially suppressed when the effort is attended by pain, or where the sound may disturb other people, as in church; but where there is destructive ulceration or paralysis of vocal cords, or

interference with the action of the expiratory muscles, the sound of the cough is greatly altered, and may be produced feebly. In laryngeal phthisis the ulceration of the cords produces a peculiar croaking cough that is characteristic. In hysteria, where there is aphonia from functional adductor paralysis, the patient is still able to cough, and this has a loud barking tone. The " aneurismal cough " is caused by the presence of the paralyzed left vocal cord, producing a curious metallic or " brassy " clang, that is readily recognized again when it has been once heard; but an exactly similar sound may be produced from paralysis of the right vocal cord, caused by pressure of an enlarged thyroid.

Where, as is often the case, the irritation that induces the cough cannot be at once removed, relief is attempted by allaying the sensitiveness of the mucous surface or the irritability of the reflex arc by local applications, painting, spraying, or inhaling, by the use of sedatives, such as hydrocyanic acid, bromide of potassium, chloral hydrate, and, above all, by opium and its alkaloids. Yet opiate preparations, in spite of their efficacy, should so far as possible be avoided, as their use disturbs digestion and diminishes appetite, especially where the cough is one of long duration, and the remedy will be needed for many weeks or months. In acute conditions the patient should avoid talking, and may inhale steam, with or without some medication, from a Maw's inhaler. A teaspoonful of compound tincture of benzoin, or 10 minims of oil of pine or pumiline or turpentine, added to the boiling water and inhaled frequently for a minute or so at one time, will be found useful in allaying the irritation in laryngeal, tracheal, and bronchial conditions. Lozenges or pastilles of liquorice or gelatine containing menthol or pine oil, tolu, ipecacuanha, and other substances, are often useful in allaying tickling in the throat or trachea by which cough is started. Where these means

fail, and sleep is disturbed, or exhaustion results from the coughing, it may be necessary to resort to opiates, such as a linctus containing $\frac{1}{30}$ grain of morphine to $\frac{1}{2}$ drachm each of syrup of tolu and acid infusion of roses.

A chronic laryngeal cough may be cured by painting the skin in front of the thyroid cartilage with strong tincture of iodine or liquor epispasticus over an area an inch square. "Stomach cough" is best treated by attention to the gastritis, and especially by stopping alcohol and tobacco. Tobacco should be forbidden in all cases of cough.

Hysterical cough may be completely and permanently cured by electricity applied in such a way as to make an impression—it does not matter how or in what form—so that the patient is made to believe that it will cure her. If the condition has lasted for some time, a series of sittings may be needed. Nervous cough may be restrained voluntarily, but this is aided by the use of pastilles of liquorice or gelatine.

In the barking cough of puberty Sir Andrew Clark gave drachm doses of the syrup of bromide of iron at bedtime.

Where chronically enlarged tonsils cause cough, they should be excised. (See Whooping-Cough, Croup.)

COXA VARA.—This deformity is generally caused by rickets, but possibly carrying heavy weights, or slight inflammatory softening, may play some part. It generally affects boys, and is most often unilateral. The patient limps, complains of pain and fatigue on walking, and ultimately there is some shortening of the limb, with external rotation and diminished power of abduction. The gait is stiff and waddling. The affection is due to incurvation of the head of the femur, which sinks so as to become horizontal, and is twisted forward; or in other instances the bending occurs just below the small trochanter, so that the shaft forms an obtuse angle.

The treatment is by rest, massage, extension, and in some cases osteotomy.

CRAMP (see **Convulsion**).—A painful tonic spasm of a muscle or group of muscles is induced by pressure that interferes with the supply of blood. It is particularly liable to attack the muscles of the calf of the legs from pressure in sitting or bending the knees, or the muscles of the forearm in writing. It comes on in bed, especially in growing boys and girls and in old and thin persons. It has some relation to articles of diet, the use of coffee being sometimes responsible for it. Thin people suffer more than those who have a protective layer of adipose tissue to ward off pressure. Ebstein thought that an attack of cramp in the calf of the leg was often a warning symptom of gout in the foot, and was due to uratic deposits in the muscles.

CRETINISM.—See **Dwarfism.**

CRISIS.—This word in the older medical sense implied a decisive event in the course of a disease, such as is observed in pneumonia and typhus fever, where there is a sudden abatement of all the symptoms that have been causing anxiety to those in attendance upon the patient. The temperature, pulse, and respiration fall to normal rates; the skin, which had been dry and burning hot, becomes cool and covered with a natural moisture; consciousness returns, and the patient, although very weak, recognizes his surroundings and his friends, takes nourishment voluntarily, and enters upon convalescence. This is a crisis in the older sense, and is still retained; but the further modern use of the word is to denote a sudden attack on some organ without significant bearing on the course of the primary disease, and thus has little justification for its use.

In the course of tabes dorsalis (locomotor ataxy) a

sudden attack of persistent epigastric pain and vomiting is called a "gastric crisis"; frequent discharge from the bowel, with cramp-like pains in the rectum, a "rectal crisis." Again, in connection with movable kidney, the hilus of the kidney may get twisted, the organ become distended with blood, giving rise to great pain; micturition is frequent, urgent, and painful; the urine is secreted in small quantities, and is tinged with blood, and vomiting may occur. This is called a "Dietl's crisis."

CROUP, FALSE CROUP (see **Diphtheria**).—Owing to the narrowness of the aperture of the glottis in children, there is great risk of suffocative spasm of the glottis from catarrhal laryngitis. There is a sudden spasmodic stridulous inspiration, with drawing in of the intercostal spaces, cyanosis of the lips and fingers, small, frequent pulse, distress and restlessness. The attack may be preceded by loss of appetite, slight temperature, huskiness or loss of voice. It may be impossible to recognize at first whether the attack is of true or false croup, and often the expectoration of false membrane is the first indication of the existence of a true diphtheritic process.

The treatment of false croup is the administration of a teaspoonful of ipecacuanha wine, which acts as an emetic and clears the passage. The application of a sponge wrung out of hot water will prevent return of the attack. In view of the difficulty of diagnosis, the practitioner in attendance should be prepared to perform tracheotomy.

CRY.—Crying or screaming is a frequent result of pain or fright, more especially in children or women. It may also be the expression of violent emotion, anger, joy, astonishment, and in infancy is the only means of expressing any want.

It is observed as a symptom of disease. In insanity and hysteria there may be screaming; an epileptic fit

may be preceded by a short high-pitched cry, that often serves a useful purpose in warning relatives or attendants that a fit has begun. In tubercular meningitis the unconscious child frequently utters a short, sharp cry (hydrocephalic cry), and puts his hand to his head. In congenital syphilis the cry of the infant is hoarse from laryngeal catarrh.

CURSCHMANN'S SPIRALS.—In the expectoration of asthma, less often in that of tuberculosis, lobar pneumonia and bronchitis, spiral mucous filaments can be found formed of a delicate thread wound round a central core, in which are embedded epithelial cells, leucocytes, and Charcot-Leyden crystals (*q.v.*).

CUTI-REACTION.—The reaction of the skin to inoculation with tuberculin (Pirquet's test) is used as a sign of tuberculosis; but as such a large proportion of healthy adults give a positive reaction, its clinical value is not great except for children under five years of age. The test is performed by putting a drop of a dilution of tuberculin (old) on the arm and scarifying the skin through the drop, a control scarification being made at the same time in the neighbourhood without tuberculin. In six to eight hours a reaction begins, which in twenty-four hours produces a papule with an erythematous areola. Occasionally a vesicle forms.

Another reaction of greater value is Calmette's oculo-reaction, produced by instilling ½ per cent. solution of dried tuberculin into the conjunctival sac. In three to five hours, if positive, congestion, œdema and lacrimation appear, and reach their maximum in eight to ten hours. There is no pain and little discomfort, but there is some risk of damage to the eye, especially in old people or scrofulous children, or those with any eye trouble. The patient's permission should always be obtained.

CYANOSIS (Morbus Cæruleus).—Blueness of the nose, ears, lips, hands, or of the whole surface of the body, may be temporary or persistent, local or general. In its most transitory form it is seen in the nose, ears, and hands as the effect of cold (see Local Syncope, Raynaud's Disease, Chilblains), or when the heart is failing from any cause, occasionally in diabetic coma, or from respiratory failure, obstruction of the larynx, or after a paroxysm of coughing in whooping-cough or enlarged bronchial glands. Chronic cyanosis is seen in congenital heart disease, where it has been called **morbus cæruleus**. The blueness of the face, lips, nose, and ears may be present at birth, or may show itself later. The commonest cause is stenosis of the pulmonary valves. Cyanosis may also develop in consequence of acquired mitral stenosis, chronic bronchitis, asthma, emphysema, chronic pulmonary tuberculosis, or in the course of acute tuberculosis.

As a result of chronic cyanosis, or of the conditions upon which it depends, not only are the fingers and toes, nose, ears, and visible mucous membranes deep red, livid, bluish or black, but the fingers, and more rarely the toes, become clubbed (see Clubbed Fingers). There may be some degree of puffiness, but rarely œdema, unless there is secondary heart failure.

In polycythæmia (*q.v.*) the skin may be red in warm weather or blue (cyanosed) in cold.

The immediate cause of the blue appearance is capillary stasis, the blood remaining locally after it has given up its oxygen.

Persistent cyanosis from bronchitis, asthma, or heart disease, may be accompanied by nervous symptoms, delirium, confusion, hallucinations, insomnia, suicidal impulses and vague fears, all worse at night, sometimes ending in torpor or coma, occasionally in acute mania or melancholia. This has been called **cyanotic insanity,** wrongly if it is meant to imply that the brain is being

supplied with unoxygenized blood, as, like the rest of the body, the brain is only suffering from defective circulation; but blue blood exists only in the peripheral parts where there is stasis.

There is a form of cyanosis which is of intestinal origin (enterogenous) associated with diarrhœa and putrid stools. The blood contains nitrites, and gives the spectra of met-hæmoglobin and sulph-hæmoglobin. The condition causes little or no discomfort, and has been cured by strict milk diet.

A false kind of cyanosis is due to poisoning by aniline, or by those too familiar drugs, acetanilide, antifebrine, antipyrine, and phenacetine, or by people using nitrobenzine in their work, or by poisoning with petroleum. In slight cases there is some degree of blueness, but in more marked examples the lips may be dark blue. There is usually no dyspnœa, and in slight cases the effect passes off without treatment. It may be necessary to wash out the stomach, to use external warmth and artificial respiration.

The treatment of cardiac or pulmonary cyanosis depends upon its cause, and in many instances these are little susceptible of cure. Rest, warmth, a warm climate, warm clothing, and sometimes nitrites, may relieve. Solution of trinitrine (1 or 2 minims), given with 10 minims of spirit of nitrous ether in a teaspoonful of water three times a day.

CYCLICAL VOMITING.—See **Vomiting.**

CYSTALGIA.—Pain in the bladder may be the result of inflammatory and other diseases, but cystalgia is a term used only for nervous pain; the urine is free from blood or pus. It is a symptom of tabes (see Crisis), hysteria, and neurasthenia, but may point to some real lesion in neighbouring organs, the uterus, rectum or urethra, fissure, phimosis or contracted meatus.

CYSTINURIA.—This is a rare form of urinary deposit which depends upon a defect of metabolism, probably congenital, but usually manifesting itself early, having been detected in infants of fourteen and twenty-one months. It may be temporary or intermittent, and runs in families, males suffering more than females. It does not necessarily cause any trouble, but may form a urinary calculus, and give rise to renal colic or the symptoms of stone in the bladder. Cystin is a sulphur-containing body which is precipitated in flat hexagonal plates. It is soluble in ammonia and caustic alkalies, and its potash solution, if boiled, gives a beautiful violet colour with nitro-prusside of sodium. There is no known remedy for this condition, but salol and sulphate of magnesia are often prescribed.

DACRYOCYSTITIS.—Inflammation of the lacrimal sac is caused by repeated coryza and secondary infection with staphylococci, streptococci or occasionally tubercle bacilli in addition. The symptoms are conjunctivitis and swelling at the corner of the eye, with the escape of turbid fluid from the punctum when pressure is made on the swelling. If the inflammation becomes purulent, there is glueing of the eyelids, the conjunctivæ become red, swollen, and even chemotic; there is pain over the swelling, and an abscess may form, with infiltration of the neighbouring parts, burrowing of pus below the orbicularis muscle, and opening of the abscess upon the cheek. The treatment is early operation by splitting up the canaliculus and free incision under cocaine.

DACTYLITIS.—An affection of the phalanges affecting the fingers and toes, more especially the former. It may be syphilitic or tubercular. Syphilitic dactylitis occurs in acquired and congenital disease, generally in the latter, coming on at any age between infancy and twenty years. The first phalanges of the index-finger and thumb are

most frequently attacked, either by gummatous infiltration of the soft parts, or by osteomyelitis or periostitis, or both. The swelling is elastic, slightly painful, or tender. If not treated, it may go on to necrosis or sinus formation and permanent deformity, but early specific treatment may secure perfect recovery. In chronic cases attention must be paid to the general health by good food, improved surroundings, and cod-liver oil, in addition to specific treatment.

In tubercular dactylitis there may be osteomyelitis or periostitis, and the bone-marrow becomes replaced by tubercular granulation tissue, the shell of bone expanding to a spindle shape with the formation of cold abscess and necrosis. The treatment is by immobilization and blistering, or surgical operation for cold abscess and necrosis. Amputation may be performed, especially in the case of a toe.

DANDRUFF.—The shedding of abundant silvery scales from the scalp is the result of pityriasis capitis or seborrhœa (*q.v.*) sicca. It is a common affection, often attributed to indigestion, constipation, the use of sweet wines, and gout. In this form it is an affection of little importance, but may be treated by washing the scalp with carbolic soap, by correcting any derangement of the digestive organs, and by abstaining from port, sherry, Madeira, champagne, and malt liquors.

DEAFNESS.—Impairment of hearing may be, but rarely is, congenital, except in the case of idiots or mentally deficient children or cretins; but it may be the result of infantile diseases, scarlatina, or cerebro-spinal meningitis, or less completely of enlarged tonsils or syphilis. Adults may lose their hearing from anæmia, middle-ear sclerosis, cerebral and cerebellar tumours, insanity, tabes dorsalis, growths, loud noises, the menopause, myxœdema, rheumatism, or caisson disease (*q.v.*) (divers).

Children born deaf, or who lose their hearing before they have properly learnt to speak, are deaf-mutes, but can be taught to speak if they are intelligent.

Persons who habitually work in very noisy workshops become deaf when outside, as if the excessive noise made the organ incapable of appreciating a weaker stimulus.

It is important to recognize whether the deafness depends upon disease of the nerve or only upon defect of the transmitting apparatus. In the latter case the patient hears the tuning-fork or watch quite well when it is applied to his head. Nerve-deafness is irremediable, but the other form is susceptible of much improvement by the use of apparatus for magnifying and transmitting sounds.

The diagnosis of the actual cause of impaired hearing and the choice of appropriate treatment is the work of a specialist.

DEATH.—The signs that life has ceased are pallor, the stoppage of respiration, of movement of the heart and pulse as determined by careful stethoscopic examination, cooling of the body, the supervention of rigor mortis (rigidity), the settling of blood (hypostasis) in the depending parts so as to stain the skin livid, loss of tension in the eyeball, and lack of lustre in the cornea, and finally the development of putrefaction, which is first noticeable in greenish discoloration of the abdomen.

In death from sudden cerebral hæmorrhage or asphyxia the face may be not pale, but congested, dusky, or black.

In fainting, where respiration may have become very shallow and the pulse scarcely perceptible, the heart sounds can be heard with the stethoscope. If the hand is held in front of a light it shows a reddish translucency from the presence of blood in the capillaries, showing that the circulation is still maintained.

DEFÆCATION, PAINFUL.—The act of defæcation may be painful from (1) the size and hardness of the fæcal mass that has to be expelled; (2) from the presence of local disease. Pain may precede the act from tenesmus, with aching over the sacrum or across the abdomen in the line of the colon, or afterwards from continued griping or soreness from stretching or laceration, especially where an ulcer or fissure of the anus is present.

Dysenteric and syphilitic ulcerations of the rectum involving the sphincter cause much tenesmus, with discharges of mucus and blood with or without fæces.

Diarrhœa frequently creates burning or soreness at the anus, and there may be some prolapse of the mucous membrane, which needs to be replaced gently by pressure with a pledget of cotton-wool dipped in cold water.

The presence of piles produces more or less discomfort after defæcation; there may be only itching or soreness; there is frequently some prolapse, but the pain is not serious.

A fissure or ulcer in the anal folds is exquisitely painful after defæcation, the sharp cutting pain lasting for many minutes. Whenever the pain is severe, a careful local examination should be made with the aid of the finger and a speculum.

Successful treatment depends chiefly on correct diagnosis. Impaction of hard fæces may be removed by an enema of warm olive oil, but sometimes the mass is so dense that it must be broken up by the finger or some blunt metal instrument like the handle of a spoon before the oil will soften it and it can be made to pass. Such impacted masses are commonly the result of the continued use of insoluble drugs like magnesia ponderosa (MgO), magnesii carbonas ponderosus, magnesii carbonas levis, the last forming two-thirds of the bulk of Gregory's powder, or bismuth, which is often prescribed in combination with rhubarb and soda as a digestive

mixture, but the quantity taken is usually considerably less than the dose of magnesia. None of these insoluble metallic salts should be taken continuously over long periods.

Dysentery and diarrhœa require the appropriate treatment for these conditions, but local relief may be afforded by the use of sedative suppositories containing opium or morphine and belladonna. No other analgesic has taken the place of opium and its derivatives in these conditions, but anæsthesine (ethyl-ester of para-amido-benzoic acid) (10 grains) may be tried as a suppository, or a 10 per cent. ointment applied for slight degrees of local soreness.

Anal ulcers or fissures are promptly relieved by incising a few fibres of the sphincter or rupturing them by forcing the index-finger deeply into the bowel. After this operation a morphine suppository ($\frac{1}{2}$ to 1 grain) should be introduced, and the bowel allowed to remain at rest for forty-eight hours, when a simple enema or a full dose of infusion of senna pods should be given, and a laxative taken regularly until the bowel has recovered its normal action.

Piles, when they produce pain or prolapse, require the help of a surgeon, but in other cases the symptoms usually pass away with attention to the action of the bowels by the daily use of a laxative, bathing the anus with cold water night and morning, and after defæcation, the disuse of paper, and the employment of one of the following ointments or suppositories. In the simplest cases an ointment of calomel (40 grains), cocoa butter (1 drachm), spermaceti ointment (7 drachms), a piece as large as a filbert to be introduced into the bowel after bathing and drying the anus. Where there is itching or burning, add 1 drachm of anæsthesine. If there is bleeding, add 15 grains of hamamelin or 80 minims of adrenaline solution to each ounce of the ointment. Where there is much pain, as in cancer, suppositories of morphine

should not be withheld, but they sometimes cause vomiting, headache and so much general disturbance that they fail. The " Enule " suppositories of Borroughs Wellcome and Co. are convenient in their shape, and are made up with various drugs to suit different conditions.

DELIRIUM (see **Delirium Tremens**).—Delirium is cerebral excitement resulting from the effect of some pathogenic toxin, organic poison, injury or commotion of the brain after an epileptic convulsion. The patient is unconscious of his words and actions, and is not responsible for what he does or says. On recovery he has no recollection of what has passed during the attack, or only a confused and partial memory like that of a dream.

Delirium may be mild, " low muttering," as seen frequently in typhoid fever, or noisy and violent, after an epileptic fit, in alcoholism, or mania. In its most extreme form it is spoken of as " maniacal delirium." There are many intermediate degrees between these two extremes, and one may pass into the other, or they may alternate one with another.

Low muttering delirium indicates asthenia, and calls for no sedatives, but must be treated by feeding, stimulation, and watchful nursing. Noisy, violent delirium requires sedatives, and may need restraint, as the patient may harm himself or others, risk his life by exertion, or escape from his attendants, and expose himself to cold or injury in various ways.

The best form of restraint is a wet pack, formed by rolling the patient in a wet sheet and then in a blanket, fastening it securely with large safety-pins so that he cannot get his limbs free. If put on properly, it is soothing, and the patient soon falls asleep.

A combination of chloral and bromide (20 to 30 grains), dissolved separately and mixed only when about to be administered, is very efficient. If the pulse is weak,

20 minims of tincture of digitalis may be added. This may be repeated with circumspection, and its effect should be watched.

In some cases muttering delirium is the consequence of hyperpyrexia, and is relieved by cold sponging.

DELIRIUM TREMENS (Mania a Potu).—This is a temporary insanity the result of continued alcoholic excess. Its onset may be sudden, as the consequence of a heavy drinking bout; or of an accident, such as a fractured leg; or of some acute infection, pneumonia for example. The patient is a habitual soaker, but may never be actually drunk. He is sleepless, tremulous, incoherent, his attention is wandering, he is suspicious, nervous, looks for a concealed enemy, and has visual hallucinations; he sees men or dogs in his room or crawling things—snakes, rats, insects; he becomes terrified, gets the " horrors," would jump out of bed or rush half-naked into the street. More rarely his hallucinations are auditory. His tongue is moist, coated, and tremulous, his pulse quick and soft, his temperature a little raised.

In a mild case he falls asleep, and when he awakes the symptoms have disappeared, though he is shaky.

In more severe cases there is persistent insomnia, anorexia, and vomiting, followed by exhaustion and death from heart failure, unless sleep can be induced.

The prognosis is good in strong constitutions. Visual hallucinations of small objects—*e.g.*, insects—are said to be more dangerous than those of larger ones—*e.g.*, dogs. The patient must be carefully examined for pneumonia, heart, kidney, or liver disease, or for neuritis, which is shown early by tenderness in the muscles of the calves.

The treatment is to maintain the strength by feeding with strong beef-tea and milk, and to procure sleep by hypnotics. Chloral and digitalis should be combined. Two drachms of chloral with an equal quantity of tincture

of digitalis, made up to a 12-ounce mixture, of which two tablespoonfuls should be given every hour until sleep is induced, or the whole quantity is taken. Alcohol should not be given. Restraint may be required by fixing a sheet with safety-pins across the bed, or fastening the patient in a wet pack by rolling him in a wet sheet fastened with safety-pins.

DELUSIONS.—Delusions are rightly regarded as the most important symptom of insanity, nothing adding greater strength to a lunacy certificate. It is therefore urgent to appreciate what they are. A delusion is defined as a false judgment upon a question of objective fact. If Don Quixote really thought the barber's basin was Mambrino's helmet, it was a delusion, and he was mad; but perhaps he only pretended it was, as children do at their games. An illusion is a misinterpretation of a real sensation, as when tinnitus is thought to be the chorus of the heavenly host. An obsession is an idea which obtrudes itself irresistibly, like King Charles's head in Mr. Dick's petitions. An hallucination is a sensory impression without objective stimulus, such as the rats and snakes that trouble patients with delirium tremens.

Delusions may take many forms, these being influenced by age, sex, previous character and bodily disease.

At puberty, and again at the climacteric, in females, they may take the form of delusions of seduction or of criminal assault. At the climacteric, too, especially if associated with deafness, there may be suspicion, jealousy, and delusions connected therewith, or the cessation of menstruation may suggest a delusion of pregnancy. Religious delusions may induce a belief in a special mission or revelation, or of having committed the "unpardonable sin."

Other delusions may refer to financial or social gain or loss, of great fortune or of ruin, of social ostracism or of

splendid advancement. In certain diseases there may be delusions of bodily health and strength, as in dementia paralytica and alcoholic insanity (see Korsakoff's Psychosis).

DEMENTIA.—This term is used to express the mental deterioration that results from brain disease, especially from attacks of acute insanity.

Dementia præcox is the form of progressive mental deterioration that comes on in young persons between the ages of fifteen and thirty. It may commence as acute mania or melancholia or stupor. There are usually delusions, incoherence, failure of judgment, change of character and of conduct. The prognosis is unfavourable as a rule.

Dementia paranoides is characterized by rapid course, marked delusions, tendency to suicide, infanticide, or fire-raising. The prognosis is bad.

Dementia senilis occurs in old age, at times taking the form only of weakening of the will, avarice, with morbid sexual promptings, or loss of intelligence, affection, and control over animal appetites, or finally complete disappearance of the intellectual faculties, conscience, and free will.

Dementia paralytica is "general paralysis of the insane," a post-syphilitic affection sometimes preceded by tabes dorsalis (locomotor ataxy). It is characterized by megalomania, attacks of transient hemiplegia, occasional violence, more or less rapid failure of intellect and bodily strength, so that the patient becomes confined to bed, and dies as a rule in from eighteen months to two years after the commencement of symptoms.

DERBYSHIRE NECK (Endemic Goitre).—Goitre is a non-inflammatory, hyperplastic enlargement and degeneration of the thyroid gland caused by infection from at present undetermined micro-organisms, whose

toxins reach the gland through the blood. The chemical character of the water-supply, the nature of the food, and the geological peculiarity of the locality, have only a secondary relation to the disease.

It is prevalent in all parts of the world, no race or country being exempt. Horses, cattle, goats, dogs, fowls, pigeons, and even fish suffer. It is more common in temperate and subtropical climates, in dwellers in the country than in town, in mountainous districts, but also in marshy and irrigated lands. Its onset may occur in epidemics; in India in the spring and autumn, but in this country in the summer. These epidemics always occur in areas where the disease is endemic, and school children and young soldiers are the principal victims. Newcomers to such a district are especially liable. Those whose occupation and social status involve close and continual contact with damp infected soil are chiefly affected; hence the relative immunity of town-dwellers. The disease shows a close relation to particular places, even to a house or room, and marked fluctuations and shiftings may occur, the disease disappearing wholly or in part in one locality and breaking out for the first time elsewhere. The children of goitrous mothers are predisposed, and also those of a lymphatic or neurotic constitution. The factors that predominate in the production of the disease are those conditions which impair the functional activity of the gland, such as rheumatism, malaria, intestinal disorders, and helminthiasis; those which stimulate excessive functional activity, among which altitude plays an important part, but also bad air and food, puberty, sexual activity, menstruation, pregnancy and emotion; lastly, occupation, already mentioned, and the use of drinking-water which is very hard or shows a high degree of bacteriological impurity.

The disease may be congenital. Females after puberty and throughout the child-bearing period show a special

liability. Goitrous mothers are apt to bear cretinous children. (For Cretins see Dwarfism.)

The prevention of the disease involves improved sanitation and hygiene, personal cleanliness, the sterilization of drinking-water by the addition of minute quantities of iodine, the cleansing of stables and byres, and the removal of manure-heaps and cesspits.

The treatment involves, where it is possible, removal from the endemic area, or the above sanitary and hygienic precaution. The internal administration of tincture of iodine (5 minims gradually increased to 15, or 20 minims daily with caution, lest it start exophthalmic goitre). The presence of any cardio-vascular symptoms must be regarded as contra-indicating its use. Iodine or the biniodide of mercury ointment should be applied over the swelling. Intestinal antisepsis by "sour milk," thymol, or salol, and lastly the use of an autogenous vaccine prepared from the *Bacillus coli* of the patient. Thyroid extract has been used with advantage in cases with symptoms of thyroid defect.

DERMATOGRAPHIA.—In certain conditions the skin is so irritable that if scratched with the finger-nail or a pencil a white wheal surrounded by a reddened areola is left in the track made. The whole tracing soon becomes red, and persists for many minutes, so that the patient's name or the name of his disease may be written quite legibly on the skin of his back or other part of his body. The skin of some neurasthenic persons is always in this condition; they are liable to urticaria from friction or a current of cold air or contact in bed with a cold sheet, and the two are always associated. In acute rheumatism it is generally present, and may persist during convalescence.

DESQUAMATION.—The shedding of the epidermis, or desquamation, may be the result of any general or local

affection that has impaired the nutrition of the skin. It is characteristic of scarlatina, but also occurs to a limited extent in measles, while in eczema rubrum and pemphigus foliaceus the epidermis is shed in large flakes. In gout the thickened epidermis of the soles of the feet comes off in great quantity, while to a less extent desquamation occurs over the seat of the articular lesion.

Desquamation of the epidermis of the scalp is met with in seborrhœa sicca (see Dandruff).

DEXTRO-CARDIA.—The malposition of the heart so that the apex-beat is on the right side may be congenital as part of an anatomical anomaly in which the heart alone or the positions of all the viscera are reversed, or as the consequence of arrest of development of the right lung; or it may be acquired as the consequence of pleural effusion, pneumothorax, subphrenic abscess, or from collapse of the lung, extensive fibrosis, scoliosis, and falling together of the ribs, or of Pott's angular curvature from tuberculosis of the bodies of the vertebræ.

DIABETES.—See **Glycosuria, Polyuria.**

DIARRHŒA is the passage of a loose or semi-liquid motion, but is not important unless its quantity is excessive or such stools are repeated. Many healthy persons always pass loose stools perhaps twice daily without any obvious ill-effect or evidence of any pathological condition. Probably, just as the bowels of many persons are sluggish in their movements, in others these are brisk. Radiographic examination of the rate at which the products of digestion pass along the intestine shows a remarkable uniformity down as far as the cæcum, any variation in time occurring in their transit along the colon. Even here it is most usual for the fæces to pass to the descending colon in normal time, and for delay to take place in the pelvic colon. The natural

stimulus to the colon is the undigested cellulose of the food, and where this is in excess diarrhœa may result, just as constipation (*q.v.*) is a natural consequence of its defect. Cellulose is present in all vegetables, but especially in their fibrous and membranous parts, so that bran in brown bread or oatmeal may act in one person as a comfortable stimulus, in another as a cause of diarrhœa, the result depending upon variations in the sensitiveness of the bowel in different individuals. The brown rye bread eaten in Germany called "Pumpernickel" causes sharp diarrhœa in persons unused to it. The ordinary diet taken by English people errs by defect of cellulose, hence the prevalence of constipation. Coarser bread and the daily use of green vegetables and fruit would be an improvement upon meat, potatoes, and fine white bread, which in the main form the food of the people. Diarrhœa depends more upon bacterial infection of the bowel than upon diet. We see its greater prevalence in warm weather, which favours microbial growth, and the relation it bears to the use of food which has not been sterilized by heat, such as water, fruit, and salads. Moreover, we notice here the effect of absence of immunity to certain bacteria seen in the prevalence of diarrhœa among travellers in hot weather abroad, or when at some distance from home without crossing the sea. Common diarrhœa is due to some modification of the colon bacillus. Its effects in adults are rarely serious apart from its occurrence as a complication of other diseases or in the infirm and aged. If taken in time, it can be readily checked by simple means. The diet should consist of food which has been sterilized by heat and which is free from cellulose. Five drops of chloroform with 15 minims of tincture of opium, added to an ounce of mixture of bismuth and bicarbonate of soda or chalk mixture, may be taken three or four times a day. In neglected cases it may be necessary to restrict the diet

to milk and lime-water in equal parts until the purging stops. In tropical countries, especially in India, where there is always a risk of cholera, it is dangerous to allow diarrhœa to go untreated, as it is in the stage of premonitory diarrhœa that cholera can be controlled.

Infantile diarrhœa is always caused by the use of unsterilized food in warm weather, and may readily prove fatal, as it may rapidly assume a choleraic form with liquid or serous stools, griping, collapse, and death. The bowels of infants dying in this way may show marked signs of catarrh, with swelling and even ulceration of the solitary glands. There is no reason to doubt that we have to do with a grave infection, although there is still some hesitation as to the identity of the organism or organisms concerned. The best preventive is the careful sterilization by heat of all food given to infants in hot weather. Simple means are effective if the disease is taken in time, while all remedies may be useless in neglected cases. Teaspoonful doses of the mistura cretæ B.P., or a mixture made up with 2 or 3 grains each of bismuth and bicarbonate of soda with 3 minims of mucilage of tragacanth in a drachm of aqua anethi, given after each loose motion or before each feed, should be sufficient. The well-known risk of opium or its alkaloids with young children makes us cautious, but a minim of tincture of opium may be added to each dose where the child is evidently in pain. With older children, where the diarrhœa is obviously the result of indigestion, and there is a history of unsuitable food having been taken, a dose of castor oil or calomel may be useful; but its advisability must depend upon the absence of all signs of collapse, and largely upon the age and vigour of the child. Always bear in mind that children may grow worse very rapidly, and may slip through our fingers, so that it is better to err on the safe side, and let the main object be to stop the purging by putting them to bed on the simplest diet

of equal parts of milk and lime-water, with a mixture of chloroform, opium, and chalk suited to their age.

DIATHESIS.—This term means a hereditary or acquired constitutional condition, implying special liability to certain organic diseases and minor affections. A well-known example is the gouty diathesis, which includes a predisposition not only to attacks of gouty arthritis, but to disorders of the skin, eyes, ears, teeth, and, in fact, of almost every organ depending upon the same underlying diathetic state. The hæmorrhagic, lymphatic, and nervous diatheses are also well recognized constitutional states with their several peculiarities.

DILATED STOMACH.—See **Gastrectasy.**

DIPHTHERIA. — Diphtheritic inflammation attacks mucous surfaces or wounds, and is characterized by the formation of a membranous exudation or false membrane on the surface. It usually affects the fauces, nose and larynx, less commonly the conjunctiva, genitals, ear, œsophagus, stomach, bladder or urethra. It is associated with the presence of the Klebs-Loeffler bacillus, but often with mixed infections, and this bacillus may be absent.

Faucial diphtheria usually occurs in children, and is spread chiefly by contact, its relation to school attendance being indubitable. The first symptoms are lassitude, fever and swelling of the glands at the angle of the jaw, with some sore throat. The tonsils are generally swollen and are covered with a thin film, which in the course of twenty-four hours develops into a yellowish-grey exudation, that may cover the tonsils, pillars of the fauces and soft palate. This exudation becomes in time dark and foul; if it is detached, it forms again. The temperature is irregular, the pulse rapid, weak and irregular; the swelling of the glands spreads and cellulitis follows;

broncho-pneumonia often appears; the urine contains albumin; the heart may fail and death frequently occurs from syncope. There is no close connection between the constitutional symptoms and the amount of exudation.

In **Nasal** diphtheria there is at first a watery blood-stained discharge, becoming muco-purulent and mixed with fragments of membrane or casts of the nasal passages. The nose is more or less blocked. The nasal affection may occur alone, but is most often combined with the disease in the fauces.

Laryngeal diphtheria is described under Croup, but the constitutional symptoms are those of the faucial disease, and may be severe.

Conjunctival, Genital, Gastric, and **Wound** diphtheria are rare; the local and constitutional symptoms resemble those already described.

Among general symptoms are bleeding from the nose and gums, hæmaturia, melæna, ecchymoses, petechiæ and purpura. The blood shows leucocytosis.

Paralysis, the consequence of neuritis affecting the peripheral nerves, is a fairly common sequel which may follow a slight or even unrecognized faucial infection. It usually begins by paralyzing the soft palate, and shows itself by fluids passing into the nose on attempts to swallow. The palatal reflex is abolished. The paralysis may then become general, with loss of power in the limbs, abolition of reflexes, and wasting of muscles. It may affect the ocular muscles, or may cause death from cardiac paralysis.

Anæmia is generally observed as a result of the disease. There is always a risk of *relapse*, and one attack confers no immunity.

Owing to the want of uniformity in the throat symptoms and the frequent absence, at least in the early stages, of any characteristic exudation, the diagnosis can only be

made by prompt and diligent use of *bacterial examination* of all doubtful throats, especially when the disease is epidemic.

The prophylactic treatment requires the isolation of the sick and the quarantine of contacts. Antitoxin should be injected as early as possible. On the first day 1,500 to 2,000 units; later, 8,000 to 10,000 units, followed by half the dose on the next day, and repeated until the exudation shows signs of resolution. The injections should be made with aseptic precautions, and, although not uncommonly rashes and arthritic swellings appear, they are not serious. Anaphylaxis (*q.v.*) never results from a second injection if given within fourteen days after the previous one.

It is better to remove the local exudation by spraying with boric acid or chlorine solution or lime-water, cleaning and then swabbing with boro-glyceride. The laryngeal condition may require tracheotomy. Paralysis should be treated by daily hypodermic injections of neutral solution of strychnine, beginning with 5 minims, and increasing 1 minim each day until some temporary stiffness is produced, when the dose may be reduced by 5 minims, and then lowered 1 minim daily. These injections are quite safe, and as a rule a dose of 25 or 30 minims is reached before any physiological effects result.

DIPHTHONGIA.—A rare alteration of the voice, in which two notes of unequal pitch are audible simultaneously. It is due to a growth on the edge of the vocal cord dividing the glottis into two unequal portions.

DIPLACUSIS.—In consequence of an affection of the auditory nerve or labyrinth, a single note may be heard as two.

DIPLEGIA.—Paralysis of both sides of the body, a double hemiplegia of cerebral origin. The disease is a

meningo-encephalitis, but included in it are certain cases of birth-palsy from injury or meningeal hæmorrhage. It may begin later, but usually is congenital, or manifests itself in the first year of life. The symptoms are loss of power, spasticity and increased reflexes, without alteration of sensation; the legs are extended and adducted, the feet often crossed and in the equino-varus position. The mental condition is imbecile; speech is defective; there may be strabismus or nystagmus; epilepsy and athetosis may occur. At times the onset of the disease is preceded by convulsions or coma, but it is usually insidious and the mental condition is only perceived as time makes the defect noticeable. Where the disease shows itself later, there may be distinct deterioration of intelligence, with loss of power of speech.

DIPLOPIA.—Double vision is the result of disease interfering with the co-ordinated action of any one of the muscles moving the eyeballs. In congenital squinting (see Squinting) diplopia is absent. It may occur as the result of injury, of disease of the accessory sinuses, of the lacrimal gland, of exophthalmic goitre, of syphilis involving the oculo-motor nerves, of cerebral hæmorrhage, of myasthenia gravis, or of hysteria. Monocular diplopia may occur when two images are formed on one retina from double pupil, partial detachment of iris, dislocated lens, incipient cataract, or irregular astigmatism, or in some cases of traumatic hysteria.

DIPSOMANIA.—This name is given to a special form of craving for alcohol which is paroxysmal and irresistible. It occurs in persons who belong to families exhibiting other instances of nervous instability—*e.g.*, insanity or epilepsy—and depends upon a peculiar susceptibility to the action of alcohol. So long as the patient is an abstainer he does not know the delights of alcoholic intoxication, and is safe. Usually he makes this discovery

between the ages of twenty and thirty, but it may be later that he first forms acquaintance with alcohol. This susceptibility seems to be the rule with uncivilized men, as they appear to derive no pleasure from alcohol short of complete intoxication. Most civilized persons, on the other hand, seek only the exhilarating effect, and do not deliberately court any further stage; but the dipsomaniac, like the savage, desires to be completely drunken. The craving in persons subject to it may be checked by an effort of will, but is stimulated by fatigue, overwork, worry, lactation, or any debilitating condition. The mind becomes captivated with the idea that alcohol will end all their troubles of body or mind, and this obsession becomes so strong that, if there is any opportunity to gratify it, the patient yields and takes alcohol to excess, often enough to induce coma. Unfortunately, the paroxysm does not necessarily pass away, but when the patient awakes next day his main object is to renew his debauch. This goes on until he becomes really ill; his stomach rejects not only food, but alcohol, or he may get delirium tremens or become insane.

The paroxysms may occur only periodically, with long intervals, during which the patient leads a regular life. Occasionally such men are found to possess rare ability, and occupy positions of considerable eminence, but their careers are more or less marred by the defect. The prognosis is generally, but not always, bad. The results of even periodical indulgence too often are visceral disorders, arterio-sclerosis, myocarditis, hepatic cirrhosis, chronic nephritis, chronic gastritis and proneness to infections, so that dipsomaniacs rarely attain the normal limits of life. Some become insane and drift into asylums, where their lives probably last longer than they would outside. In others the paroxysms become fewer and less violent as age advances, so that they are more easily checked. This perhaps rare result happened in a case

known to me, the patient, who was of a vigorous constitution, conquering his malady when he was about forty-seven, and living for nearly forty years longer.

The management of paroxysmal dipsomania presents obvious difficulties. The occurrence of the paroxysm seems to be often quite fortuitous, but known excitations, such as overwork and fatigue of all kinds, should be avoided. These patients must be total abstainers, and there should be no alcohol in the house, as no doubt many paroxysms can be averted by an effort of will. No one knows how often they fight successfully against attacks for every one they yield to. When the paroxysm has begun, washing out the stomach is recommended, and moderate doses of chloretone, bromide of potassium, chloral, or a combination of these, may be given. The patient should be induced to take food, and sodium sulphate or magnesium sulphate given every morning in hot water. In order to arrest the paroxysm it is often necessary to use some form of restraint by inducing the patient to enter a home, but in the existing state of the law this can only be done with his consent, except in the case of persons who have come before the police courts—a negligible minority. Hypnotism may be of service, and undoubtedly personal influence may enable the patient to exercise his own will power and avert attacks.

DIRT-EATING.—The eating of earth or clay, plaster, cinders, or even fæces, is met with among savages, children, pregnant women, idiots, lunatics, and sufferers from hysteria; but stercophagy, or the eating of fæces, is confined to idiots and lunatics. Pregnant women and hysterical patients eat plaster and cinders, while children and savages eat earth or clay. Among some savage tribes the custom appears to be due to the need for something to stop the cravings of hunger. Some kinds of clay are said to have a sweet and not unpleasant taste,

for which reason, perhaps, the habit is common among both white and coloured children in the southern portions of the United States of America, where it is held to be one of the chief causes for the prevalence of ankylostomiasis (hook-worm disease).

DISSEMINATED SCLEROSIS, INSULAR SCLEROSIS.—A chronic disease of the brain and spinal cord, characterized by the cardinal symptoms of—(1) Intention tremor; (2) nystagmus; (3) scanning speech. Its course is irregular and variable, extending over many years and undergoing prolonged remissions. Its recognition is difficult until its characteristic features are established. The origin of the disease is unknown. It is impossible to disprove its relation to acute infections, cold, trauma, or emotion, but there is evidence of the prejudicial effect of pregnancy. The disease may begin by an attack of spastic paraplegia, which passes away as abruptly as it came. There may be some imperfect control of the bladder; anæsthetic patches are common, but may be transient. In some cases there is causeless laughing or crying, and later euphoria, fatuity, and dementia. The marked temporary remission of the symptoms leads to the disease being confounded with hysteria. Its duration is prolonged—ten, twenty, or more years—but it always ends fatally.

Pseudo-sclerosis is a rare disease closely resembling disseminated sclerosis, but showing post mortem no sclerotic patches. The cases recorded have been in quite young persons of more or less weak intellect. The movements of the arms are rather unsteadiness than tremor, the shaking being shared by the tongue and head; the sphincters are intact, and there is no sensory disturbance.

DREAMS.—In perfect sleep the entire functions of the cerebrum are temporarily in abeyance, but it frequently happens that some part of the ideo-sensory mechanism

is active, probably as a consequence of the existence of some peripheral stimulus. For example, a loud noise may not wake the sleeper, but start a train of associated ideas, so that on waking he recalls a dream in which the noise is fitted into a train of events connected with an actual occurrence, or with a tale read recently which had made some impression, or to what is wholly fantastic and incoherent. An awkward position in bed may cause difficulty in respiration, and the dream takes the form of a struggle with an antagonist who is trying to choke the dreamer. In the same way indigestion may determine vertigo, or what would be vertigo if the patient were awake, but in sleep is translated into a dream involving some great peril—a "nightmare," in fact. Dreams might be classified according to the nature or seat of the peripheral stimulus to which they owe their origin, but this would leave out of account the by no means unimportant group which start in the brain itself. These dreams are allied to epilepsy; they imply a pathological irritability of the brain centres, which discharge of themselves without any peripheral stimulus.

The "night-terrors" of children may be of this kind, but every possible source of peripheral irritation should be diligently sought for and removed. If these measures fail to stop the attacks, recourse must be had to remedies that lower the excitability of the brain, especially by alkaline bromides.

Some morbidly excitable children suffer from what has been called "day-mare." Although the child is fully awake, it is haunted by vivid imaginations that disturb or frighten it. This condition deserves careful watching, as it points to serious brain trouble. Neurotic children subject to dreams, nightmare, or "day-mare," should have their general health made the first consideration. They should follow an open-air life, have no fixed lessons, live on a lacto-vegetarian diet, including cereals, milk, eggs,

cheese, vegetables, including lentils, and fruit of all kinds, but no tea, coffee, or cocoa; and they should take bromide of sodium, beginning with a grain for each year of age, every night at bedtime.

It has been held that mucous catarrh of the bowel is largely responsible for both day and night terrors, and it is claimed that these symptoms are readily cured by abstinence from potatoes, pastry, and sugar, with the administration of potassium citrate combined with iron and compound decoction of aloes. Thread-worms are often present, and should be removed by suitable treatment.

DROPSY.—The accumulation of fluid in the lymph spaces or serous cavities of the body is called "œdema," "dropsy," or "anasarca," or is given a special name in accordance with its situation. For example, dropsy of the peritoneum is called "ascites," of the pleura "hydrothorax," of the pericardium "hydropericardium," of the cranial cavity "hydrocephalus," of the tunica vaginalis "hydrocele."

When fluid accumulates in lymph spaces under the skin or mucous membrane, the surface is tense, smooth, pale, and translucent; it pits on pressure; it causes narrowing of openings, as of the eyes, mouth, throat, or larynx, with diminution of function. The subjective symptoms are a feeling of tension or weight, stiffness and weakness of the limbs. When the pharynx or larynx is involved, there may be a sensation of suffocation.

If the effusion takes place into a cavity, its size is increased, its walls distended, its contents displaced or compressed, and the functions of the organs impaired. The percussion note over the fluid is dull, fluctuation or succussion may be felt, while the auscultatory signs are obscured. As a rule secretion and excretion are checked, the skin and mucous membranes are dry, the urine is

scanty, dark, and muddy, the stools hard and constipated. Exceptionally, there may be diarrhœa, polyuria, or bronchorrhœa.

Dropsy may be acute, chronic, or intermittent. Acute dropsy shows itself especially where the skin is lax, as in the eyelids, prepuce, and scrotum; chronic dropsy generally appears in the dependent parts. Dropsy of long standing causes thickening of the tissues; the skin, from overstretching, shows false scars, like striæ gravidarum, and old dropsical cavities contain cholesterin.

Dropsy rarely disappears by bursting externally, but some degree of trickling may take place. Recovery, when it occurs, is by resorption, diarrhœa, or diuresis. Death may result from œdema or compression of the brain, hydrothorax or hydropericardium, erysipelas, inflammation, or gangrene, but more often it is the consequence of the disorder of which dropsy is a symptom—heart, kidney, or liver disease.

General Dropsy, or **Anasarca,** is most commonly met with in acute or subacute nephritis, but in old-standing heart disease approaching the end the effusion may gradually invade all parts but the head. Dropsy of the legs and depending parts is often seen in wasting diseases, phthisis, chronic sepsis, malaria, and anæmia.

Ascites, when limited to the peritoneal cavity, is caused by portal cirrhosis of the liver, thrombosis of the portal vein, cancer of the liver and peritoneum, obstruction of the receptaculum chyli or thoracic duct (the fluid is chylous), tubercular peritonitis, or as a complication of ovarian tumour. Fœtal ascites results from fœtal peritonitis.

Nervous Dropsy is seen in the œdema that sometimes occurs in the paralyzed half of the body in hemiplegia. Dropsy in exophthalmic goitre (*q.v.*) is probably due to heart failure.

Hysterical Dropsy is usually unilateral, affects only one limb, which is often the seat of contracture, is cyanosed, and of low temperature. The œdema does not pit.

Angio-Neurotic œdema is the name given to those limited transient swellings of vasomotor origin that used to be called "giant urticaria." The effusion is sometimes hæmorrhagic and leaves an ecchymotic stain. It may occur in any part of the body or head, in the pharynx, and probably in the alimentary canal.

Irritative Dropsy is that which occasionally follows slight irritation of the skin, as by sunburn; but œdema of the glottis may be caused by swallowing boiling water or irritant poisons.

Lymphatic Dropsy.—The swelling of **elephantiasis** (*q.v.*), affecting usually the legs or scrotum, is caused by blocking of the lymphatics by the parent *Filaria*, and the dropsy of **trichinosis** is in like manner due to lymphatic obstruction by *Trichinæ*.

Epidemic Dropsy is usually the "wet" form of beriberi, although an epidemic that occurred thirty-five years ago in India and Mauritius was held to present certain distinct features. The symptoms are dropsy, anæmia, fever, wasting, weakness, breathlessness, diarrhœa, and vomiting. The temperature is remittent, rising as high as 102° F. The onset is sudden, and death is usually also sudden from heart failure.

An epidemic of dropsy is said to have attacked the army of Charles V. during his expedition to Tunis. It was attributed to drinking freely of water after long abstinence. French troops in Algeria have suffered, too, from attacks of œdema; while the natives of Africa are alleged to get œdema of the scrotum if they are suddenly overtaken by rain when working in a hot sun.

The treatment of dropsy is by tapping, diuretics, catharsis (with caution), massage, and bandaging.

Malignant Œdema is another name for malignant pustule, or anthrax.

DRUNKENNESS.—This is the effect of an excessive dose of alcohol. The normal stages are—(1) Exhilaration or excitement, in which the patient is talkative, perhaps brilliant, often noisy, sometimes quarrelsome or destructive—the drunk and disorderly of the police courts; (2) quiet, drowsy, unobtrusive drunkenness, in which the patient may soon fall asleep and the effect of the alcohol pass off; (3) coma, usually the result of a full dose taken quickly, as when an inexperienced young man is induced to drink a large quantity of whisky. These stages are not necessarily seen in the same individual. Many only exhibit the first and second, others only the second, and some the third, which may come on very quickly in such circumstances as those described. Again, in other cases the phenomena at the time may be slight, but the next day there is much gastric disturbance, and the patient is very shaky.

In coma the patient is unconscious, the pulse is full, the respiration deep and slow, the pupils dilated, the temperature subnormal, even as low as 80° F. in the rectum. There may be muscular twitchings or epileptic convulsions.

The treatment is to wash out the stomach. Emetics are less safe, and apomorphine may cause dangerous exhaustion. A dose of calomel should be put on the tongue, and the patient should be allowed to sleep.

There is a belief among soldiers that a dose of vinegar will remove the symptoms of drunkenness sufficiently to allow the offender to pass the sergeant of the guard, but probably if he has the sense to do this he has enough of his wits about him to get through the not very close examination of an officer who does not want to make trouble, and will be satisfied if the man can go quietly to bed. It is

not a difficult matter to empty the stomach by tickling the pharynx, a common practice among German students in their drinking bouts; but this is regarded as a confession of weakness, and they carry their liquor if they are able.

DUMBNESS (Mutism).—Inability to speak may be a symptom of idiocy or imbecility, but is most often the result of deafness following an acute infection (scarlatina) before the child has learnt to speak. Where the mental condition is normal, the child can be taught not only to speak on its fingers and to read and write, but to speak with its voice, and by lip-reading to understand what is said.

DUPUYTREN'S CONTRACTION.—This contraction in the form of fixed flexion of one or more fingers, usually the ring and little fingers, of the right more often than the left hand, is caused by thickening and contraction of the palmar fascia and its digital prolongations. The mischief begins in the transverse furrow of the palm, the first phalanx becomes flexed upon the metacarpal bone. It develops slowly with difficulty in extending the finger, and nodular thickening of the fascia can be felt. It is distinctly hereditary, makes its appearance after middle life, and has some relation to injury, to pressure, and to gout or rheumatism. Certain occupations—those of coachman, gardener, and engraver—act as exciting causes. Treatment by splints and extension is useless; the contracted fascia must be divided and excised.

The youths called "onsetters," who have to push the tubs laden with coal in the pits, suffer from callosities of the palms of the hand, caused by grasping the rim of the tub. The skin becomes thickened; there is progressive retraction of the fascia, with flexion of the fingers, the middle finger suffering most. There is no pain, and the affection is often bilateral. Subcutaneous division of

the contracted fascia seems to be the only efficient means of treatment.

DWARFISM.—Under this heading may be conveniently included all those conditions in which the development of the body falls notably short of the normal standard. These various forms are—(1) Ateliosis (two forms); (2) progeria; (3) infantilism; (4) cretinism; (5) rickets; (6) achondroplasia.

Ateliosis is continuous youth, of which two types are recognized. The first is asexual; it is a prolongation of the state of childhood, not connected with cretinism, syphilis, or congenital heart disease, and is often rather delay than arrest of development. The second is sexual, the "Tom Thumb" type; the growth of the body is delayed until at puberty the form becomes set as a miniature man or woman, intelligence and sexual organs being normal.

Progeria is infantilism associated with premature decay, as indicated by facial appearance, attitude, loss of hair, wasting of muscles and fat, atheroma of bloodvessels, and senile degeneration of viscera.

Infantilism is a term which expresses persistence of the appearance of childhood long after the age of puberty. The body is small, but well proportioned; there is no hair on the face or body; the sexual organs are well formed, and intelligence is normal. Such cases are due to heart disease, either congenital or acquired, in early childhood; to persistent "cyclical vomiting," chronic diarrhœa, malnutrition; to some forms of chronic poisoning; to alcoholism; to parental syphilis.

Cretinism is an arrest of development, resulting from thyroid defect. It occurs commonly in districts where the population suffers from goitre, and is then called "endemic cretinism," a condition which is rare in Britain,

although a few examples have occurred in Derbyshire and Yorkshire; but it is common in Switzerland and in the Himalayas, where endemic goitre prevails. Cretinism in this country is usually "sporadic," and although caused by thyroid defect, there is no satisfactory explanation of its occurrence, as it may make its appearance in otherwise healthy families. At birth the infant appears normal, but soon shows signs of backwardness; it is dull, constipated, the face puffy and expressionless, the forehead wrinkled, the tongue large, the hands broad, the temperature subnormal. In the sporadic type the thyroid is absent; in the endemic form a goitre develops. In childhood the infantile appearance persists; the belly is prominent, with marked lordosis of the spine, and there is usually an umbilical hernia; there are pads of fat in front of the axillæ and above the clavicles; the skin is dry, the hair scanty; the milk teeth may persist even to the eighteenth year. At ten or twelve years of age the size and appearance are those of a child of three or four. The child is imbecile or backward, dull and slow, but may be tidy and docile, learning slowly to speak, and employing a limited vocabulary. As an adult it is usually about 3 feet high, with a brachycephalic head; thick, dry, loose skin; scanty coarse hair; open fontanelle; stunted trunk; prominent belly; lordosis; often lateral curvature; short, thick limbs; hard, prominent muscles; feeble, waddling gait; cold extremities; absence of hair on body; sexual organs infantile; while in the female the breasts are undeveloped. Menstruation is usually absent, or late and irregular. Pregnancy and delivery have occurred, but the child is poorly developed, and soon dies. The mental condition is at best unprogressive, showing no initiative, and cretins are usually shy, morbid, and solitary. They are prone to somnolence. The most striking fact about cretinism of both forms is the remarkable improvement brought about by the administration of sheep's

thyroid gland in young subjects, but after thirty years of age this treatment is less successful. Cretinism is, in fact, congenital **myxœdema** (*q.v.*).

The **Rickety** dwarf is the "Punch" type, with large, broad, flat head, narrow thorax, marked kyphosis of the spine, prominent abdomen, long bones of the arms and legs, often bent. As children they may be backward and lethargic, but later on may show average intelligence, with perhaps a spice of malice. The court dwarfs of earlier times often belonged to this class. When the rickety condition has passed away, the bones may become strong and the muscles powerful, but in other cases the bones may be friable and break from slight accidents.

Achondroplasia is the result of intra-uterine disease, leading to defective growth of the long bones. The adults are 3½ to 4 feet high; head of normal size, but with frontal and parietal bulging; trunk of normal length, but narrow from shortness of ribs and pelvic girdle. The arms and legs are about half the normal length; bones thick, with large epiphyses; palms of hands flat; fingers divergent, two to the radial, two to the ulnar side. The pelvis is so narrow that delivery is impossible, and Cæsarian section or pan-hysterectomy is necessary. These cases develop normally, cut their teeth early, are not late in walking, and show a natural development of intelligence and sexual organs. The condition is not one for which there is any known treatment. Nothing positive is known as to its causation, but it is not due to syphilis, alcohol, or malnutrition. It is probably hereditary, and occurs in the lower animals, dogs, horses, cattle, and goats. Scott's "Black Dwarf" belonged to this class. The diagnosis can generally be made at birth, but these children are usually weakly, and often die in a few days.

DYSACOUSIS. — Difficult hearing may result from disease of the middle ear or of the labyrinth or auditory nerve, which may be differentiated by means of the tuning-fork.

DYSÆSTHESIA.—This is a synonym for paræsthesia (*q.v.*).

DYSBASIA.—A synonym for intermittent claudication (*q.v.*).

DYSENTERY.—This is a clinical term to express an affection of the rectum and large bowel, which become inflamed, ulcerated, and gangrenous. It causes very frequent defæcation, with pain, straining, griping, and discharges of mucus and blood. There may be nausea and vomiting. The skin is dry, the tongue glazed, appetite is lost, and as a result there is great weakness with progressive emaciation. Abscess of the liver is a secondary result of one form of dysentery (amœbic dysentery).

This clinical term covers two distinct diseases, which have only been differentiated in recent times; but they are not only pathologically widely separated, but each has its peculiar clinical features. Pathologically one is due to a bacillus, or possibly two kinds of bacilli—that of Flexner and that of Shiga, modifications of the common colon bacillus. This is the form of dysentery that is pandemic, and was formerly the common cause of epidemics in Europe, especially in prisons and camps, but has lately appeared only in lunatic asylums. It was rife among the German army in 1870-71, and will probably be heard of in the present war. Sporadic cases occur pretty commonly, but their existence has been obscured by the use of the name "ulcerative colitis." Bacillary dysentery in the tropics is often epidemic and acute, here generally sporadic and chronic or intermittent. The

onset of the acute form is sudden, with diarrhœa, straining, and griping pain; the stools are very frequent, as often as every hour or more, and they contain blood-stained mucus. In this catarrhal stage the symptoms are as above described, with little rise of temperature, and recovery may take place without the disease going farther. In the next stage prolapse of the bowel is common, and sloughs of the mucous membrane are discharged. The temperature rises to 101° or 102° F. The urine is scanty, and generally contains a trace of albumin. The extent of the gangrenous process varies, sometimes many inches of the mucous lining coming away. The consequence of this is that if the patient recovers, the intestine undergoes so much deformity from ulceration and cicatrization that the passage of fæces is impeded, sacculation occurs, and perforation with peritonitis may prove fatal months or years after the original attack of dysentery. The cases of the "ulcerative colitis" type met with in this country usually terminate by perforation and peritonitis.

Amœbic dysentery is almost confined to the tropics, as Schaudinn's amœba (*Amœba histolytica*) dies if exposed to a temperature below 70° F., so that it is only in an exceptionally warm summer that it has a chance of surviving after it has left the body of its host, but the writer has published the case (*British Medical Journal*, March 27, 1909) of a man who, having never been out of England, must have been infected by some person who had brought the parasite from the tropics.

The symptoms of amœbic dysentery show themselves intermittently; the disease is chronic and insidious, but the infection persists, and attacks are brought about by indiscretions of diet, which set up an enteritis in which the amœba finds its opportunity. The amœbæ can be found in the stools imbedded in masses of mucus. Penetrating the mucous membrane of the bowel, they set up

enormous thickening, with diphtheritic inflammation, ulceration and sloughing, and, farther wandering into the veins, they reach the liver through the portal circulation, where they cause an abscess.

Dysenteric Abscess of the liver may be formed in persons who complain little or not at all of dysenteric symptoms, and the rupture of such an abscess may occur in a man whose history only reveals occasional attacks of fever, regarded by him as malarial. In other cases the abscess may cause pain in the right hypochondrium, or at the right shoulder-tip or angle of the scapula; jaundice, loss of appetite, dry tongue and vomiting, pointing to gastric catarrh. The liver is enlarged and may be tender, but even incision does not always succeed in reaching the abscess, which may burst into the bowel, the lung, or the peritoneum. When it bursts into the lung, the sputa have the characteristic anchovy-sauce-like appearance of the pus of these abscesses. The attacks of fever are very like those of malaria, being intermittent, with a considerable maximum rise reaching 103° or 104° F.

The treatment of the two forms of dysentery differs. The varied opinions as to the value of ipecacuanha that have prevailed during the last fifty years depend upon this, for it is in the amœbic form only that it is a specific, and so long as the two types were confounded doubt of its utility was inevitable.

In bacillary dysentery during the acute stage the patient must rest in bed; his diet should consist of milk thickened with flour (a tablespoonful to a pint); the local inflammation should be soothed by starch and opium enemata, while a mixture of sulphuric acid (the acid infusion of roses) should be given by the mouth, 1 ounce every four hours. A few drops of laudanum may be added to each dose. Thirst may be allayed by barley-water.

In amœbic dysentery a more generous diet is per-

missible, excluding all vegetable matter containing cellulose. Ipecacuanha should be given by the mouth in keratin capsules, at first 30 grains, preceded by 20 grains of chloral in solution. This quantity of ipecacuanha should be repeated daily for three or four days, then reduced to 20 grains daily for another week, and then to 10 grains, which should be continued daily for a month. The patient should be sent out of the tropics, and should not return for two years at least.

It is believed that the ipecacuanha treatment prevents the formation of abscess of the liver, but if it should occur, it is recommended that the abscess should be aspirated and irrigated with a solution of quinine, which kills the amœbæ. Twenty or 30 grains of the acid hydrochloride of quinine may be dissolved in 1 or 2 ounces of water, according to the size of the abscess, as estimated by the quantity of pus withdrawn, and this solution injected into the cavity.

DYSKINESIA.—This denotes diminution or deprivation of the power of voluntary motion, but its use is commonly restricted to the difficulty in walking sometimes experienced after childbirth, in consequence of partial dislocation of the joints of the pelvic bones, pubic, sacro-iliac, or coccygeal. The treatment is by rest, the local application of a blister, and later by wearing a binder; but dislocation of the coccyx may require forcible reduction.

DYSMENORRHŒA (see **Menstruation**).—In the section on Menstruation the normal event is described, and the frequent occurrence of some discomfort and pain in the lower abdomen, back, and sacrum is recognized. The pain indicated by the present title is more serious, more incapacitating, but no hard-and-fast line can be drawn, as there is no measure of painfulness which holds good for different persons.

The physiological processes of menstruation, if capable of causing some pain and discomfort where the organs concerned are healthy, are likely to produce worse symptoms when any of these parts is the seat of recent or old-standing inflammation, or of anatomical or pathological deformity or displacement, atresia, or obstruction. These statements apply to uterus, tubes, and ovaries, to disorders originating in either, or to secondary troubles from pelvic cellulitis or peritonitis, or to adhesions resulting therefrom. Lastly, there are those cases which, in the absence of any definite structural alterations, are classed as neuralgic, occurring in anæmic or neurotic women, or connected with goutiness (*q.v.*) or rheumatism. In this last group the pains are more often not confined to the pelvis and back, but radiate to the groins and thighs, and are even complained of in the breasts. The accurate diagnosis of these several conditions demands in many cases special skill, but in the virgin many of them may be excluded, so that a few hints on treatment may be given.

The general treatment should be, during the intervals, reasonable and regular exercise, avoiding undue fatigue, balls, late hours, and excitement, but plenty of fresh air, abundant simple food without alcohol, with only moderate use of tea and coffee. Tight lacing and tight boots must be given up, and the action of the bowels regulated. During the periods the patient should rest in bed while the pain is most severe, the foot of the bed being raised. The local application of a large mustard poultice, or an indiarubber hot-water bottle, a hot bath, or a hot vaginal douch, gives much relief. Hot drinks containing ginger or other carminatives are helpful. Alcohol and opium, although effective, should not be ordered on account of the danger of inducing alcoholism or morphinism, but a teaspoonful of sal volatile in hot water may be given. Anodynes, such as acetanilide or

ammonol, or a mixture containing bromide and belladonna, may be taken so long as the pain lasts: Tincture of belladonna, 10 minims; bromide of potassium, 10 grains; spirit of chloroform, 15 minims; distilled water to 1 ounce (see Genital Spots).

Retention of Menses may be the result of some congenital or acquired obstruction, and requires to be overcome by surgical means under scrupulous aseptic precautions, on account of the great risk of infection. The symptoms pointing to this condition are the absence of external flow, in spite of swelling of the breasts, weight in the pelvis, flatulent distension, and in some cases of palpable enlargement of the uterus.

DYSPEPSIA (see **Abdominal Pain, Biliousness, Eructation, Flatulence, Vomiting**).—This convenient word, which implies some difficulty or disorder of digestion, and is used legitimately to imply a subjective fact from the point of view of the patient, is no longer satisfactory as a *diagnosis*. It is a symptom which is presented by many different pathological states, so that we may speak of alcoholic, atonic, catarrhal, climacteric, chlorotic, diabetic, duodenal, gastric, intestinal, nervous, pancreatic, or uræmic dyspepsia, according to the cause or the seat of the disturbance of function which occasions the trouble. But even these terms are lacking in the precision that we aim at in diagnosis, which seeks to discover and express the structural or functional derangements that give rise to the symptoms. Where there is anatomical change, our modern methods aim at demonstrating it; and when we can with tolerable certainty exclude this, we hope to be able to show the alterations of function by which the process of digestion is hindered, or pain and discomfort are produced.

We can recognize such structural alterations as acute, subacute, and chronic gastritis, simple and malignant

ulcer of the stomach or duodenum, dilatation, pyloric obstruction, atrophy of the mucous membrane of the stomach, obstruction of the biliary or pancreatic ducts by calculus or growth, and such functional disorders as excess or defect of gastric juice, or of gastric motility, or with less certainty of the secondary or supplementary digestions that take place in the intestine. These results are attained by a combination of means, most of which are comparatively recent discoveries—the careful observation of the history in each case; the results of post-mortem examinations correlated with the symptoms that were present during life; the use of the stomach-tube, by which we can study the process of digestion on carefully arranged meals; the examination of the size and position of the stomach by distending the organ with fluids, liquid or gaseous, or by observing the shape of the organ when filled with a bismuth emulsion on the radiographic screen or in a radiographic plate. By delicate chemical tests we can detect blood in the stomach contents or fæces which is not visible to the naked eye, or even to the microscope.

We have learnt much by the progress of stomach surgery, which has corrected many false assumptions, and has taught us not to underestimate the difficulties that have yet to be overcome; and we admit that, much as we have advanced, the diagnosis of diseases of the stomach is yet by no means perfect, that mistakes are still possible, although we may employ all available means and exercise unremitting care.

DYSPHAGIA.—Difficulty of swallowing, with or without pain, may be due to many causes, and may arise in any part of the complex mechanism by which the act is performed.

There is first the passage of the food through the mouth to the arch of the palate, effected by the muscles

of the tongue, cheeks, and mouth; secondly, the raising of the soft palate to cut off the entrance to the naso-pharynx, the closure of the larynx by the contraction of the true and false vocal cords, by which food is prevented getting into the air passages; thirdly, the raising of the pharynx, the seizure of the bolus by the constrictors of the pharynx; and, lastly, the peristaltic action of the œsophagus, by which the food is passed along that canal to the stomach. At the stomach the cardia should open, but there again a difficulty may arise from spasm or local disease interfering with this action. In any of the parts involved in this mechanism there may be something to induce dysphagia.

Under normal conditions the food is masticated until it is reduced to a pulpy mass, and is mixed with saliva, which not only converts the starch more or less completely into slimy dextrine, but indues the bolus with mucus, that facilitates its deglutition. As is well known, dryness of the mouth interferes with this process, and may be the consequence of nervous influence—*e.g.*, fear—or of disease of the parotid and other salivary glands.

Inflammation of the tonsils or other structures in the mouth or its neighbourhood may make swallowing painful, or by causing swelling render it difficult or impossible.

Tubercular or syphilitic disease of the larynx may interfere with its closure, or render it so sensitive that the passage of food may cause coughing or retching.

Paralysis of the soft palate, as seen frequently after diphtheria, causes fluids to pass into the nose, while paralysis of the pharyngeal muscles, which may occur in syphilis, abolishes the power to grasp the bolus, so that the food must be introduced into the œsophagus by a tube. Paralysis causing inability to swallow may occur in cerebral hæmorrhage or softening, in meningitis, in bulbar paralysis, in advanced stages of progressive muscular atrophy, and in conditions of profound asthenia,

especially just before death, when the power of swallowing may be lost.

A post-pharyngeal abscess may interfere with swallowing by its bulk or by involving the muscles.

The passage of food along the œsophagus may be obstructed by external pressure from bronchocele, enlarged bronchial glands, malignant growths, aneurism, pericardial effusion, and by the formation of a perioesophageal abscess after injury to the œsophagus by swallowing a corrosive liquid.

Or the obstruction may be in the wall itself, from spasmodic or cicatricial contraction, or from new growth.

Lastly, foreign bodies, such as pieces of bone or false teeth, may get impacted, and obstruct the passage until they are pushed into the stomach or withdrawn.

Nervous or functional dysphagia is seen from emotion, where, as is said, the food seems to choke; as a result of shock or in hysteria, where there may be extreme and painful spasm of the pharynx and œsophagus; pharyngismus, or œsophagismus, in which swallowing may be impossible for some hours; or as a symptom in rabies; but the common neurosis is spasmodic stricture of the œsophagus, where the patient complains of inability to swallow, yet a large-sized soft gum elastic œsophageal bougie passes easily into the stomach, with as a rule the satisfactory result that the patient is cured.

All the various causes of dysphagia arising in the mouth and pharynx can be recognized by careful inspection and examination with the finger. Those lower down by the history, by examination of the chest and by cautious exploration of the œsophagus by a sound or bougie.

In such diverse conditions no general rule of treatment can be laid down. It is not even true to say that liquid diet is always appropriate, as where the movements of the muscles are painful or spasmodic it may be as difficult to swallow liquids as solids, while in paralysis of the

palate liquids alone cause difficulty by their tendency to get into the nose, as is often seen in post-diphtheritic conditions.

Pain may be prevented by painting or spraying the part with cocaine (10 per cent.) a few minutes before the food or drink is administered, and external poultices, or hot fomentations, or the inhalation of steam, may soothe and render swallowing more easy. Ten or 15 grains of anæsthesine dissolved in oil may be swallowed just before feeding in cancer of the œsophagus, in order to render the œsophagus less sensitive, and so to facilitate the passage of the liquid or semi-liquid nourishment that can be taken.

The treatment of these varied conditions should be as far as possible radical, and must not be included in the discussion of the treatment of symptoms, but must be sought in the special textbooks or articles dealing with them.

DYSPHONIA (see **Aphonia**).—The loss of voice from which clergymen and street criers sometimes suffer may be purely nervous, and is often due to strain from faulty voice production.

DYSPNŒA, or difficulty in breathing, may be owing to many causes. Obstruction in the air passages from foreign bodies, paralysis of abductors of the larynx, swelling from œdema or inflammation affecting the tonsils, pharynx, or glottis, pressure on the trachea, or as a symptom of diseases of the heart or lungs or of anæmia.

Orthopnœa is an exaggerated form of dyspnœa, where the difficulty of breathing is increased by lying down. It is often present in pleuritic effusion, pneumothorax, double pneumonia, in asthma, œdema of the lungs, and in pericarditis, heart failure, thoracic aneurism, and advanced renal disease.

Obstruction of the Air Passages by Foreign Bodies.—Foreign bodies in the air passages may cause spasm of the glottis or mechanical obstruction. There is generally a history showing what has happened, or the substance may be felt with the finger or seen by the laryngoscope. If it is beyond reach by the finger or forceps, an attempt may be made to dislodge it by inverting the patient, who is frequently a child, or emesis may be induced by administering a teaspoonful of ipecacuanha wine. Where these means fail, tracheotomy may be necessary, when, by getting access to the trachea, the body may be seized with forceps and withdrawn. Soluble foreign bodies such as a lozenge or sweet need not cause anxiety, as they will dissolve or be easily expelled by coughing.

Paralysis of the Abductors of the larynx occurs in the course of locomotor ataxy and other organic diseases of the spinal cord. The spinal symptoms may not attract attention until they are looked for, and the paralysis of the abductors may have caused no serious inconvenience until the patient catches a cold, when the obstruction to the glottis becomes more marked from swelling about the bases of the arytenoid cartilages, which increases the resistance to be overcome by the weakened muscles. In such a case tracheotomy may be urgently required, and the patient should be made to wear an indiarubber tracheotomy tube permanently, as the accident may recur at any time.

Dyspnœa from Œdema of the Pharynx may occur in persons liable to angioneurotic œdema. It may cause alarming dyspnœa, and even suggest the need for tracheotomy; but the nature of the case is generally made clear by the history and by the presence of similar swellings in other parts of the body. Ice may be given to suck, and an ice-bag applied externally to the throat. The prognosis is good.

Dyspnœa from Œdema of the Glottis may be caused by swallowing irritants, such as boiling water, or may occur in the course of acute or chronic Bright's disease. Occasionally in the latter condition it may be the only manifestation of œdema. Ice to suck may relieve, or scarification may be used. Tracheotomy is seldom required, but the case may be grave from other causes in addition to the local condition.

Pulmonary Dyspnœa is a symptom of many affections of the lungs. Sudden orthopnœa occurs in pneumothorax, which it may be right to relieve by puncture of the chest-wall with a large trochar. Another cause of orthopnœa is a large pleuritic effusion. This also should be treated by thoracentesis.

The Dyspnœa of Bronchitis is not usually urgent, and passes off as the obstruction in the bronchioles diminishes under suitable treatment, although an emetic may be used to clear away the mucus if the symptom is persistent and distressing. This means should be employed in cases of plastic bronchitis to clear out the casts from the bronchi.

The Dyspnœa of Pneumonia, or of tubercular disease of the lungs, calls for no special treatment.

Dyspnœa from inflammatory swelling of the **tonsils** (tonsillitis) is seldom excessive unless an abscess has formed, when this should be incised. The pointing of a **post-pharyngeal abscess** from tubercular disease of the cervical vertebræ must be treated surgically. **Laryngitis,** catarrhal or diphtheritic, may cause distressing dyspnœa, to be relieved by an emetic of a teaspoonful of ipecacuanha wine. **Pressure on the trachea** from intrathoracic aneurism or growth causes persistent stridor, and in extreme degrees orthopnœa, with the head stretched forward; its relief is necessarily beyond our resources.

Cardiac Dyspnœa is relieved by rest, by stimulants, such as brandy, ammonia, and ether, by the inhalation of amyl nitrite, or the administration of 2 minims of trinitrin solution by the mouth.

Dyspnœa is a very common symptom in **Anæmia** (*q.v.*) in all its forms. It is absent when the patient is at rest, but becomes marked on exertion; and as palpitation of the heart is an accompaniment, anæmic patients are disposed to believe that they suffer from organic disease of the heart, a mistake sometimes encouraged by an ill-considered medical opinion to the effect that the heart is "weak." Simple chlorotic anæmia is thoroughly amenable to vigorous treatment by iron, and it is regrettable to see such a patient dosed with digitalis. In cases where there are cytological changes in the blood, with the presence of normoblasts or megaloblasts, and irregularity in the size and shape of the blood discs, arsenic is the most effective drug, and its best form is arsenious acid ($\frac{1}{25}$ grain in pill three times a day after food).

EAR, PAIN IN.—Pain may be felt in the ear from carious teeth, enlarged cervical glands, mumps, and tonsillitis. Frost-bite of the pinna, once experienced, may leave a tendency to recurrent pain whenever the weather is cold.

Herpes zoster is attended with pain if it attacks the ear as elsewhere, and a special form, herpes of the tympanic membrane, is associated with disease of the geniculate ganglion.

Gouty nodules in the cartilage become painful if inflamed.

Otitis externa diffusa is a diffuse inflammation of the external auditory canal that gives rise to great pain. This may be periodic in its paroxysms. The pain is difficult to relieve even by morphine; heat applied locally

seems to be more effective. A small indiarubber finger-stall filled with hot water should be introduced into the meatus, and refilled as often as it gets cold. Larger applications such as poultices and fomentations give less relief.

Furunculosis of the meatus is a most painful affection. In the early stages the boil should be painted freely with tinct. iodi fort., but if this fails to arrest it, a small incision must be made to relieve pain and tension. Fomentations allay the pain, but morphine may be necessary.

Acute inflammation of the middle ear (otitis media acuta) is not only a very painful but also a dangerous disease, as it may extend to the membranes of the brain. The middle ear is full of pus, which may burst externally through the drum, with relief to the patient, and this natural cure is imitated by the surgeon, who incises the membrane and lets out the pent-up pus.

In chronic middle-ear disease (otitis media chronica) there is no constant pain, but attacks of paroxysmal pain. The inflammation may spread into the mastoid cells, causing pain and swelling behind the ear, that may call for trephining of the mastoid process, so as to drain the suppurating cavity. A still more serious sequel is abscess of the temporal lobe of the brain, and this may be painless until it bursts, sets up diffuse meningitis, and proves fatal. In other more fortunate cases it may afford indication of its presence by causing headache and puffiness of the scalp, and so permit of a timely operation.

Foreign bodies introduced into the meatus to relieve itching, or as a practical joke or by accident, as in the case of a bicyclist who fell against a hedge and suffered from great pain in the ear, which proved to be due to a long thorn from a hawthorn bush that had penetrated the external meatus without causing an external wound of the skin. Dried wax in the ear (*q.v.*) may cause impaired hearing, giddiness, and pain, but the last symptom is the least common.

Tumours and polypi of the meatus may cause pain, deafness, and discharge from the ear.

ECTHYMA.—A pustular eruption, the pustules having hard bases, red areolæ, become covered with scabs, and, on healing, leave pigmented scars. There is a syphilitic form, but the usual type is seen as a consequence of scratching from the bites of insects (or leeches in the tropics), from paddling in the sea, or from pre-existing scabies or eczema. An acute form, which is very rare, may be attended with some fever.

When the eruption is on the legs, it may be desirable to prescribe rest. The treatment is by tonics and saline aperients, with zinc or ammoniated mercury ointment applied locally.

Syphilitic ecthyma requires internal specific treatment. The local application of a piece of mercurial plaster over each pustule is recommended.

ECTOPIC GESTATION.—When the development of the ovum takes place outside the cavity of the uterus, it is described as " ectopic gestation." This may occur in the abdominal cavity or in the ovary, but as a rule the situation is the Fallopian tube, the cause being some congenital deformity or acquired pathological change in that organ. The symptoms are vague. There may be dull, aching, pelvic pain, with missed or irregular menstruation, and some development of the breasts, but absence of the usual subjective symptoms of pregnancy. Shreds or a more or less complete uterine decidua may be passed. Early in the pregnancy there may be an attack of violent pain, with pallor, syncope and rapid, thready pulse, the consequence of rupture of the ovum and hæmorrhage. If it takes place later, the consequences are even more alarming, the rupture and profuse hæmorrhage leading to death in a few hours.

Operative results have been most successful, and

the recognition and successful treatment of this condition is one of the most notable advances in modern gynæcology.

ECTROPION, ENTROPION, EPIPHORA. — Ectropion means the eversion of the eyelid, so that it is no longer applied closely to the eyeball; if this happens to the lower lid, the orifice of the tear-duct fails to collect the tears, but allows them to flow over the cheek—a condition which is called **Epiphora.** If the margin of the lid is turned inwards, so that the eyelashes, or what remains of them, come in contact with the eyeball, irritation of the globe results, this condition being called **Entropion.**

The cause of all these troubles is inflammation of the follicles of the eyelashes and the glands at their roots, leading to excessive secretion, pustulation, purulent discharge, matting together of the lashes, ulceration of the margin of the lid, atrophy of the follicles, and finally loss of the eyelashes, with eversion or inversion of the margin. This disease is called "blepharitis marginalis." It may result from any of the causes of conjunctivitis, and sometimes from eye-strain due to hypermetropia.

The treatment, in addition to the correction of any refractive anomaly, is the use of a warm boric acid solution (2 grains to the ounce), followed by the application of a weak yellow oxide of mercury ointment (2 grains to the ounce). In some cases, touching the ulcers with nitrate of silver solution (1 grain to the ounce), and removing the hairs. Eversion or inversion requires an operation to remedy the deformity.

Epiphora may be the result of paralysis of the orbicularis muscle occurring from rheumatism, syphilis, progressive muscular atrophy, injuries, and other causes.

ECTROPION VESICÆ.—Extroversion of the bladder, or ectropion vesicæ, is a congenital malformation much more

common in boys, where, owing to incomplete closure of the ventral tube, absence of the anterior wall of the bladder, and separation of the pubic bones, the posterior wall of the bladder forms a red vascular tumour, in which the ureteral openings can be distinguished with the urine dropping constantly from them. This malformation is usually associated with epispadias (*q.v.*) and other defects. The dribbling of urine causes local inflammation and infection, which is apt to set up pyelitis and nephritis. Various plastic operations have been performed without much success.

ECZEMA.—Simple non-contagious dermatitis arising from some external irritant, or in consequence of constitutional conditions, or lastly and doubtfully as the result of microbial action.

Dermatitis may be caused by the irritation of some caterpillars, of the hairs of certain plants, by contact with tar or arsenic, by dry or cold wind, by the rays of the sun (eczema solare), by X rays, or by the local action of a galvanic current. The very young and the very old have vulnerable skins, but there is no difference between the sexes. Gout and struma afford predispositions, and chronic gastro-intestinal and renal diseases determine dyscrasiæ, which injuriously affect the nutrition of the skin. The position of microbes to eczema is that no microbe has been shown to be specifically related to the disease, although many have been shown to be present.

Eczema may be acute or chronic. In the acute form, there is redness, burning, or heat; the formation of numerous bright red papules, which become vesicles, and discharge a watery fluid. The epidermis is desquamated, and the raw surface discharges freely, becoming covered with crusts. In the chronic form there is more itching than burning, and little, if any, discharge; but scaly crusts form over the patches, which may bleed when scratched.

The treatment of eczema must be eclectic. In acute cases it should be soothing, the crusts being removed by the application of lint soaked in boric lotion, and covered with waterproof or guttapercha tissue. The lotion should be renewed frequently before it dries. When the crusts are removed, and the surface is clean, ointments, or zinc gelatine, or plaster mulls, may be suitable. In chronic eczema, weak tarry ointment or lotions, or those containing carbolic acid, allay itching and favour healing.

ELEPHANTIASIS.—This condition is so called because the leg or legs thicken, especially from the knee downwards, so as to assume a shape resembling the leg of an elephant, the ankle-joint and instep being obliterated, while the toes peep out from the enormously thickened skin. An identical condition may affect the skin of the scrotal sac, so that this develops into a tumour weighing many pounds, and measuring several feet in circumference. In both cases the cause of the hypertrophy is the blocking of the lymphatics by the parent worm of the Filaria, generally *Filaria sanguinis hominis*—the same parasite that causes chyluria (*q.v.*). Elephantiasis scroti is successfully treated by dissecting off the hypertrophied skin, reserving enough to make flaps; but elephantiasis of the leg has been regarded as incurable until recently, since when improvement has been effected by introducing a buried silk thread along the whole length of the swelling.

EMACIATION.—Progressive loss of flesh is an early symptom of many serious diseases, but slight variations of a few pounds have no significance. The amount and the rapidity of the loss of weight give it importance. Unless there has been a decided change in diet, a falling off of anything over ½ stone in the course of three or four months ought to suggest the propriety of a careful examination to exclude tuberculosis, cancer, and diabetes,

as all these may begin insidiously, wasting being the first symptom to attract attention. Too much importance should not be attributed to the statements of patients or their friends that they "look thinner in the face," but definite data based on weighings should be sought.

Abstinence from food to a considerable extent or altogether, in consequence of nervous anorexia (*q.v.*), or as the result of the adoption of some dietetic fad, or with the legitimate object of reducing corpulence, may cause a considerable reduction of weight, all the more readily if the individual had previously a superabundance of spare flesh. Giving up alcoholic drinks, especially beer, may easily be followed by a loss of a stone in weight if the patient had been stout.

EMBOLISM.—If a fragment of blood-clot or other material (an embolus) passes into the circulation, it travels until it reaches some part which is too narrow to allow its passage. There it sticks, and obstructs the circulation, causing local hæmorrhage and impairment of function, while if it is charged with septic matter an abscess will result. The seat of obstruction is called an "infarct," or "infarction," simple or septic, with corresponding effects. An embolus may originate wherever there is blood-clot and an open vein, as in wounds and injuries, fractures of bones, the puerperal uterus, or from vegetations or wart-like outgrowths in the heart in endocarditis. The resulting symptoms depend upon the organ or part of the organ in which the embolus is lodged. In the brain it may cause hemiplegia, in the eye blindness, in the lung pain and hæmoptysis, in the kidney pain and hæmaturia.

EMPROSTHOTONOS (see **Tetanus, Convulsion**).—This is a rare form of convulsion in which the body is arched forward. It may follow on the recoil from opisthotonos (*q.v.*) in tetanus or strychnine-poisoning.

EMPTINESS.—This is a sensation akin to hunger (*q.v.*) often met with in association with neurasthenia, with pregnancy, and with menstruation.

ENLARGED PROSTATE.—The prostate gland undergoes a certain amount of enlargement in 34 per cent. of men over sixty years of age. It interferes with the act of micturition to some extent, and renders the bladder slightly irritable. Under these circumstances alcohol irritates the bladder, and, if taken at night, is a cause of the patient being disturbed several times to pass water. If the hypertrophy involves the middle lobe, micturition may be so much impeded that the bladder is never completely emptied. Under these conditions retention may occur from alcohol or cold, causing congestion of the gland, and catheterization becomes necessary to afford relief. The use of the catheter is attended with risk of infecting the bladder. The instrument must be sterilized by boiling each time before it is introduced; therefore it is desirable to have the prostate excised before cystitis and other secondary troubles have developed, for when performed at this stage the operation is practically free from risk.

ENTERALGIA.—Pain in the bowel is called "enteralgia" when it is purely neuralgic. It is a neurosis, and is met with in neurasthenia and hysteria.

ENTEROPTOSIS.—In neurasthenia the tone of the abdominal muscles may become relaxed, and the abdominal viscera prolapse into the pelvis. The falling of the bowel is called "enteroptosis," but this word is often used to imply a condition in which more than the bowel is involved. Thus, one or both kidneys, but especially the right kidney, the stomach, and other abdominal viscera, may share the displacement (splanchnoptosis). In early cases, a Weir Mitchell course, massage, elec-

tricity to the abdominal muscles, combined with measures tending to improve the general health, may effect a cure. The kidneys can be fixed in position by operation (nephropexy). Finally, an abdominal belt will afford the necessary support.

The symptoms produced are vague, for, besides some degree of pain and weight in the abdomen, some authorities attribute all the nervous symptoms of neurasthenia to the dislocation of the abdominal viscera, and advocate their fixation by surgical operation as the true method of curing the nervous troubles.

EPHEMERAL FEVER.—At one time febricula was recognized as a definite fever of short duration, but of specific character. Now this view has been abandoned, and such cases are attributed to dyspepsia, to aborted infections, to over-exertion, and especially to exposure to hot sun, which in tropical countries is the undoubted cause of ephemeral fever.

EPIDIDYMITIS.—In consequence of urethritis, gonorrhœal or gouty, or the passage of instruments, the impaction of calculus, the use of strong injections, the presence of urethral stricture, disease of the prostate or seminal vesicles, the epididymis becomes inflamed, causing aching, thickening of the spermatic cord, swelling, effusion into the tunica vaginalis, and in acute cases redness and œdema of the scrotum, with rigors and fever. The acute stage may last a week. As a rule the case ends in resolution. Suppuration or sloughing is rare. It is not uncommon for hard nodules to persist, and the function of the testicle may be impaired, bilateral epididymitis being a cause of sterility. The treatment is rest in bed, the scrotum raised on a small pad or pillow, with an icebag or belladonna and glycerine applied over the swelling. Leeches or fomentations are sometimes useful. A calomel purge is advisable, and the diet should

be light, without alcohol. A suspensory bandage should be worn when the patient gets up, and chronic thickening may require strapping with mercurial plaster. Chronic epididymitis is usually tubercular, but may be gouty or syphilitic, calling for appropriate remedies.

EPILEPSY.—See **Convulsion.**

EPIPHYSITIS.—In young infants suffering from congenital syphilis there may be loss of voluntary power in a limb, with swelling and tenderness around a joint. More than one joint may be affected. The electrical reactions of the muscles are normal. The epiphysis may be partially displaced or mobile, giving an obscure sensation of grating. There may be effusion of fluid into the joint, and suppuration may occur. The result may be malposition and stunted growth of the limb. Early treatment leads to recovery. This must include anti-syphilitic treatment, with immobilization of the limb. The condition is apt to be confounded with infantile paralysis, but the presence of swelling or thickening of the epiphysis, the normal electrical reactions, and the early age, serve to distinguish it. Restriction of passive movements exists, but is less than in tubercular disease.

EPISTAXIS, or bleeding from the nose, is a common occurrence in childhood, where it has little significance, and is perhaps often induced by the habit of picking the nose. It is frequently traumatic, the result of blows or contusions of the nose or face, with or without fracture of the nasal bones. Blood may be discharged from the nose in fracture of the skull, or in hæmoptysis or hæmatemesis, where the quantity is large, but these cannot be fairly regarded as cases of epistaxis. It is a common premonitory symptom in typhoid fever.

Fatal epistaxis is almost confined to that which occurs in

chronic Bright's disease, but it may be brought on by whooping-cough, or occur as the result of the suppression of menstruation. It is one of the forms of bleeding in such hæmorrhagic disorders as hæmophilia, purpura, scurvy, or in connection with the hæmorrhagic types of various infective diseases.

It stops spontaneously so frequently that many useless remedies enjoy a considerable amount of popularity.

Sponging the nose with cold water, or the local application of ice, or spraying with adrenalin solution, may be successful; but if the bleeding does not stop, it is better to proceed at once to plug the posterior nares.

ERGOTISM.—Poisoning by eating grain from diseased or spurred rye (*Secale cereale*) causes at first nausea, vomiting, constipation or diarrhœa. Later there are patches of anæsthesia, redness or burning, followed by gangrene. Other symptoms are spasmodic contraction of the fingers and toes, which may be so severe as to resemble tetanus or posterior spinal sclerosis, with loss of knee-jerks and ataxy or delirium, passing into mania and stupor.

ERUCTATION AND REGURGITATION.—These disagreeable symptoms imply in the case of the former the ejection of gas from the stomach, and in that of the latter the rising of stomach contents, usually liquid, into the pharynx and mouth. The commonest cause of both is overdistension of the stomach, overeating or overdrinking, or both.

Belching is bringing up wind. The stomach always contains gas, as is plainly shown on the radiographic screen, but this is atmospheric air swallowed with food. An excess of air is swallowed when food is bolted or imperfectly masticated from haste or defective teeth, so that the stomach becomes overdistended, and relieves itself of some of the air it contains.

Loss of tone in the œsophagus or the sphincter of the cardia favours both the swallowing of air and its return, and this want of tone is met with in neurasthenia, in shock, fatigue, excitement, and pregnancy. The gas brought up is odourless, but may be tainted by conditions in the mouth (carious teeth), the nose (ozæna), or pharynx, from the presence of fœtor-producing microbes—*Bacillus fœtidus*, *B. mesentericus*, *Lactis aerogenes*, *Proteus fluorescens*, and *P. septicus*. Much more rarely flatulence is formed by fermentation in the stomach, but this needs time as well as deficiency or absence of the normal antiseptic, the hydrochloric acid of the gastric juice. The essential condition is time, from delay of food in the stomach when there is pyloric obstruction. The fermentation of carbohydrate material gives rise to the formation of carbonic acid gas (CO_2) and hydrogen (H), more rarely to sulphuretted hydrogen (H_2S) and marsh gas (CH_4). The last is highly inflammable, and has been known to take fire with an explosive report when expelled as the sufferer is lighting his pipe.

Eructation may be persistent or habitual in neurasthenic or hysterical persons. The air is swallowed, and then expelled with more or less noise. This may be attended by epigastric distension, distress, anxiety and palpitation.

Regurgitation of acid stomach contents into the œsophagus causes a burning sensation behind the sternum, extending to the pharynx; it may be accompanied by eructation of gas and rising of food or liquid into the mouth. This is called " pyrosis " or " heart-burn," and is usually caused by overdistension or excessive acidity.

The regurgitation of tasteless, watery fluid is called **water brash.** This fluid is saliva that has been swallowed, but in most cases it has not reached the stomach, but is returned from the œsophagus.

The slow return of food into the mouth may indicate

stricture or dilatation, or the presence of a diverticulum or pouch of the gullet.

Regurgitation may lead to the curious habit called **merycism** (*q.v.*), or rumination, because the food is returned to the mouth, the cud chewed and again swallowed, after the fashion of ruminating animals. It probably originates with regurgitation, but becomes a habit. In some cases it has had an imitative origin, as in the case of a ruminating governess, whose charges acquired the habit, but were soon cured when she had been sent away.

The causes that have been enumerated indicate the appropriate treatment in most cases of either eructation or regurgitation. The neurotic cases are difficult to deal with, as the patients are often unwilling to believe to what a large extent the condition is under their own control, and cling to the notion that they have some serious organic disease. Doubtless in some cases this may be present—gastritis, pyloric obstruction, or even cancer. In all cases a careful examination must be made, and no case set down as a neurosis until all organic conditions have been excluded. Acute distension with gas may be relieved by the stomach-tube, but habitual sufferers obtain a certain amount of ease by nibbling a hard biscuit, charcoal biscuits (not because they absorb gas, as that is impossible for *wet* charcoal), ginger root, or turkey rhubarb, or from *perles* of creosote or carbolic acid, which act like other carminatives by stimulating the stomach to contract and expel some of the gas. Strong black coffee and liqueurs after heavy meals afford relief in this way.

ERYSIPELAS.—This is an acute spreading inflammation of the skin and cellular tissue, depending upon invasion by pyogenic streptococci. The attack may be preceded by chilliness or rigor, and the temperature rises to 103° F. or more. Vomiting is not unusual. The tongue

is coated, and the bowels confined. Locally, spots of redness form, run together and spread at the margin, which is slightly raised. The whole surface is œdematous, smooth, red and tense, and blisters containing clear yellow fluid may form upon it. The superficial lymphatics may show themselves as red streaks, while the deeper trunks may be felt as firm cords. The patient complains of a burning sensation in the inflamed area, which is tender to the touch. The attack lasts from a few days to as many weeks, and relapses are apt to occur. Occasionally, in constitutions weakened by alcoholism, or the subjects of chronic organic disease, notably chronic nephritis, death may result, but speaking generally the prognosis is good. Diffuse suppurative cellulitis is one of the complications that may occur, especially where there is a surgical wound.

The treatment is to prevent further infection by painting the skin at and beyond the margin of the erysipelatous area with strong solution of iodine, while giving saline aperients, iron, and lacto-farinaceous diet, with fruit and vegetables.

ERYTHEMA INFECTIOSUM.—Three diseases are generally recognized—(1) Measles, (2) German measles, and (3) scarlatina—but there is some doubt as to the existence of a fourth, described by C. Dukes as the "fourth disease," and in Vienna as "erythema infectiosum." The latter is described as an erythematous eruption, without other symptom or subsequent desquamation, following an incubation period of four to fourteen days. The skin is hot, tense, and shining. The former may be described in the same terms, but the incubation period is stated to extend at times to twenty-one days, and the subsequent infection to fourteen days. The temperature rises sometimes to 103° or 104° F. The fauces may be red and swollen, and the glands enlarged; the conjunctivæ are

suffused. Of both it is said that they afford no protection against attacks of the other three diseases.

ERYTHRASMA.—This is an insignificant skin affection, usually seated in the folds and clefts of the skin, causing at most slight itching, and forming irregular patches, which are slightly scaly and reddened. It is rare, more common in men than in women, and due to a fungus—the *Microsporon minutissimum.*

The treatment is by rubbing in ammoniated mercury ointment, or painting with tincture of iodine.

ERYTHROMELALGIA.—This rather rare disease occurs in both sexes, usually in middle life, and among those whose occupations involve much standing or sitting in constrained positions. The symptoms are sudden and often severe burning or stabbing pain, generally in one foot. The pain is intermittent, the attacks lasting from a few minutes to several hours; it is relieved by rest in the horizontal position and by cold applications. The skin of the affected area is red and swollen, fading to a dusky blue, which may persist for some little time. During the red stage pain is greatest, and the local temperature is raised, but as the colour fades the temperature falls.

EXOPHTHALMIC GOITRE.—This disease is characterized by excessive functional activity and more or less hypertrophy of the thyroid gland. It shows itself in adolescence or early adult life, and especially in females, the proportion being about four women to one man. There is distinct hereditary predisposition, and some relation to other nervous diseases, to epilepsy, hysteria, chorea, and insanity. All classes suffer. Anæmia, quinsy, rheumatism, influenza, any prolonged illness, great exertion or mental strain, or the existence of simple (endemic) goitre, may have preceded it. The exciting causes are shock, fear, fright, or grief. The symptoms are enlarge-

ment of the thyroid, exophthalmos, palpitation and rapid pulse, flushing, sweating, general nervousness, nocturnal cramp and fine muscular tremor. In the acute form all the symptoms develop rapidly; in the (usual) chronic form they come on slowly. The enlargement of the gland may be unilateral or symmetrical, with pulsation and throbbing of the carotids and a systolic thrill. The protrusion of the eyeballs displays a border of white sclera above and below the cornea, but in the early stages transitory spasm of the levator of the upper eyelid may disclose a white arc above the cornea (Stellwag's sign, *q.v.*), which attracts attention. Von Graefe's sign (*q.v.*) is that the upper eyelid does not follow the eye when the patient is directed to look downwards. The mental condition is restless, irritable, emotional, and may pass into melancholia or mania. Astasia-abasia (*q.v.*) may be present. Pigmentation (*q.v.*) occurs on the face, axillæ nipples, and in the seats of pressure from clothing. The respiration and pulse are rapid, the latter permanently 100, and at times 140 or 160. The heart may be dilated, and murmurs may be audible. Craving for food, vomiting, frequent stools, or even attacks of diarrhœa, are not uncommon. The urine may be normal or increased in amount, and sometimes contains sugar. Menstruation is irregular; menorrhœa or menorrhagia may occur. Pregnancy, with temporary improvement, is possible, but parturition and lactation react unfavourably. There is always emaciation, which may be extreme, and the body temperature is slightly raised.

The duration of the disease is from three to five years. Recovery may take place, but there is danger of relapse or of the development of myxœdema (*q.v.*).

Death may result from exhaustion or from attacks of intercurrent disease in the patient's weakened state.

The prognosis depends greatly on social status, as the poor cannot get the needful rest. Men do better than

women. Of all, about one in four die. The presence of œdema or other signs of heart failure, or obstinate vomiting, or of insanity, is unfavourable.

The treatment should be rest; a few weeks in bed from time to time are of great benefit. High altitudes do harm; a soothing, mild seaside climate is best. Exertion, social engagements, excitement, and long journeys, should be avoided. The diet should be abundant, but alcohol should be excluded, and meat taken only once a day in small amount. The use of the general wet pack, or an ice-bag over the heart, is recommended. Local treatment by a weak galvanic (5 ma.) current to the skin over the gland may be tried. The most useful drugs are bromides, belladonna and mild preparations of iron (citrate of iron and ammonia). Morphine or opium in certain circumstances may help to afford rest. It is important that the patient should give up work and abstain from the cares of housekeeping.

EYE, PAIN IN.—Pain in the eyelid may be inflammatory, as in infective swelling of the Meibomian glands at the bases of the eyelashes, called "hordeolum" or "stye"; or it may be neuralgic, from disease of the Gasserian ganglion, or be associated with herpes zoster.

Orbital pain may be caused by syphilitic or tubercular disease of the wall or contents of the cavity.

The conjunctiva and cornea become exquisitely painful from inflammation, from the presence of foreign bodies, from hyperæmia—as, for example, that induced by exposure to ultra-violet rays in electric welding—and from ulcer of the cornea, strumous or asthenic.

Inflammation of the iris, gouty or syphilitic, is painful; while the pain produced by glaucoma from hypertension of the eyeball, the result of the occlusion of the lymph space at the ciliary angle, is not only acute, but of the gravest meaning. The tension and pain may be relieved

by instilling eserine and morphine, but only a prompt iridectomy can make the sight of the eye safe.

Inflammation of the sclerotic is not always painful. It is generally of alcoholic origin. It is marked by brownish discoloration of the eyeball, and there may be tenderness on pressure.

Affections of the choroid retina and optic nerve are not as a rule painful, but in acute retrobulbar neuritis there may be dull pain.

Pain in one eye, where the other is disorganized, may be premonitory of sympathetic ophthalmia.

Atrophied eyes may become painful from calcification of the choroid, and even after enucleation the stump may be sensitive on pressure.

Panophthalmitis, or inflammation of the whole organ in consequence of injury, infection, or sympathetic ophthalmia, is usually extremely painful, but not always.

Pain in both eyes is commonly due to strain from uncorrected astigmatism or other refractive defect. Such cases are remediable by the use of proper glasses or prisms, but these cannot be selected by an optical machine worked by a penny in the slot, or by an "optician," but by the skill of a qualified medical practitioner.

The instillation of cocaine solution (2 to 5 per cent.), or with the addition of adrenaline, is a marvellous reinforcement of our means for affording relief to pain in the eye, but must not be used in glaucoma. After the removal of a foreign body, or when it has come out by the action of the ciliated epithelium of the eyelids, pain may persist; and if cocaine is not available, a drop of oil, preferably castor oil, gives great comfort by separating the conjunctival surfaces.

FÆCAL INCONTINENCE.—The involuntary passage of fæces from the bowel may be the result of local disease (cancer, syphilis) affecting the function of the sphincter

muscle, or its injury or destruction in rupture of the perineum during delivery or in consequence of rectal operations. In spinal paralysis from myelitis involving the lumbar enlargement the sphincter may be paralyzed and all control lost, but where the lesion is higher up, the sphincter action is retained, and only conscious sensation is lost, so that when the rectum becomes distended the reflex mechanism alone comes into play, and the bowel is emptied without the patient's knowledge. In coma, the typhoid state, in profound exhaustion, during an epileptic fit, or even in epileptic vertigo, unconscious relaxation of the sphincter may take place. From great fear (cannon fever), or from minor causes in nervous, weakly children, and in the convulsions of strychnine-poisoning, the sphincter may give way and involuntary defæcation take place.

In mental impairment, in congenital idiots, or in acquired dementia and senility, there may be indifference to the call of the rectum, and involuntary or unregarded evacuations of fæces take place.

FÆCES (see **Schmidt's Test**).—The examination of the fæces should be made with the naked eye and the microscope. For the latter three slides should be made, one stained with iodine to show starches, one with 30 per cent. acetic acid to show fatty acids, and one to show the liquid fæces only. Mucus indicates intestinal catarrh; bile-stained flakes of mucus come from the small intestine. Connective tissue points to defective gastric digestion, muscle fibre to defective intestinal digestion; both together imply gastric and intestinal defect. A few starch cells are found in normal fæces, but a quantity points to defective starch digestion from excessive gastric acidity. Fat is rarely present (see Steatorrhœa) except in pancreatic disease.

FATTY STOOLS (Steatorrhœa). — Stools containing excess of fat are met with in blocking of the common duct, in pancreatitis and pancreatic cancer. The stools are bulky, pale, greasy, offensive, soft, and frequent, but not liquid. The amount of fat absorbed in health is about 95 per cent. of that ingested, but in these diseases it may fall even as low as 50 per cent. Quantitative estimation of fat is performed by determining the amount in a weighed sample of dried and powdered fæces.

FEET.—Cold Feet may be a minor form of local syncope (*q.v.*) caused by vasomotor spasm. The condition is more common in women than men, in neurasthenia, in association with constipation, during menstruation, from fatigue, after diarrhœa, shock, or in any exhausting or debilitating state. It seems apt to come on in bed. Woollen or fleecy bed-socks, hot-water bottles, regulating the bowels, and the internal use of calcium salts, should be tried.

Sore Feet.—Persons who are unused to walking, elderly people, or those of gouty constitution, suffer from burning pain in the feet, the result of friction and concussion. The use of French chalk in the stockings and shoes, or of grease of some kind, may prevent this, or alcohol (methylated spirit) will harden the feet—a foot-bath of spirit and water, 1 part of spirit to 2 parts of water. A special kind of sore feet affecting barefooted coolies in Assam tea-gardens appears to be due to a rash caused by the larvæ of ankylostoma worms; it is the common mode by which they are infected with this parasite.

Sweating Feet (see Bromidrosis), besides its offensive effect, is a cause of eczema, which in its turn leads to thickened rough patches (keratosis) that may undergo epitheliomatous degeneration. Excessive use of tea, coffee, and alcohol are causes of hyperidrosis, with re-

sulting pain and tenderness. Chronic arsenical poisoning is another cause.

Paræsthesiæ of the feet occur in tabes dorsalis (locomotor ataxy), in which disease complaint is often made of pins and needles or of numbness. The same symptoms are met with in alcoholic neuritis.

Ainhum is an endemic disease of unknown causation. A deep groove forms around the digito-plantar fold of the (little) toe, constricting it until it hangs by a slender pedicle, and finally drops or is cut off. The groove is filled by thick scales, below which the surface is not raw or bleeding, and after amputation the wound heals readily. One toe after another may be attacked, or the disease may recur in the stump, but it never affects the ungual phalanx. The disease may persist for years. It is by some believed to be a form of leprosy, but the *Bacillus leprœ* has not been demonstrated in it. The only treatment appears to be amputation of the affected toe.

Flanders Foot.—During the fighting in half-frozen mud and water in Flanders, when soldiers sometimes did not take off their boots for a fortnight, there were many cases of alleged "frost-bite." They were of two classes. In one there were definite objective signs, often peeling of the skin or desquamation, œdema was not uncommon, hæmorrhages into the skin and below the nails, intense dorsiflexion of the toes, numbness, coldness or deadness of the feet, with hypoæsthesia, or total anæsthesia, or hyperæsthesia. In the other class there were no objective signs, but lively complaints of pain, extreme hyperæsthesia amounting to sensitiveness to the slightest touch or to passive movements, and great variability in the areas of hyperæsthesia, or anæsthesia during prolonged examination. In no case were the symptoms those of classical "frost-bite." The first class was probably induced by interference with the circulation in the feet,

and the second were psychical. The feet were always affected, the hands rarely.

FEVER.—The Hippocratic definition, *præternaturam caliditas*, stills hold good. Increase of temperature is generally due to the action of bacterial toxins, but it may be caused by auto-intoxication, by the absorption of toxins from the alimentary canal, or of albumose in so-called "aseptic fever," or from purely nervous causes, from shock, from hysterical or nervous fever. The rise of temperature, if moderate, does not produce any symptoms, but the toxins of disease upon which it so generally depends cause headache, delirium, stupor, or coma, acceleration of the pulse and respiration, increased metabolism, hæmolysis of red blood-corpuscles, increase or diminution of leucocytes, increase or diminution of coagulability, and diminished alkalinity of the blood.

Fever is usually marked by a rise towards evening, and a fall in the morning. If this is slight, the fever is called **continued**; if marked, **remittent**; if the fall reaches the normal level, and remains there for some hours, it is **intermittent**; if the afebrile interval extends over several days, the fever is called **relapsing**; if the curve is very long and waving, it has been described as **undulant** (Malta fever). A fever of short duration is called **ephemeral** (see Ephemeral Fever), or **febricula.**

It is not necessary or always desirable to treat the rise of temperature, but where this is the case, cold sponging, the cold pack or ice cradle, should be used. Antipyretic drugs are depressing, may be dangerous, and are not very efficient.

Growth Fever (*fièvre de croissance*) is an affection of childhood and adolescence, depending upon a **staphylococcal osteomyelitis,** resulting in increased growth of the long bones. It is unaccompanied by swelling, exudation, suppuration, or necrosis. It gives rise to what are called

"growing pains." Two forms are described: (1) Afebrile, mild, with lassitude, pains in joints or shafts of the bones, and tenderness of the epiphyses. It comes on after a long walk or other exertion, and disappears with rest, may last several days, or may come and go. (2) The febrile form is more severe, the patient feels ill, the temperature may rise to 104°, there is headache, with lassitude, loss of appetite, pains in the joints, and hot skin. The onset may be sudden, and the disease last two or three days, or be more insidious and of longer duration. Relapses may occur.

The treatment in both is by rest, with plenty of fresh air and sunlight. If the pain is severe, the limb should be immobilized. Salicylate of soda may be given to relieve the pain.

FIBRILLARY TWITCHINGS. — Twitching of a few fibres of a muscle may be the effect of cold. It is sometimes toxic from tobacco or coffee. Fibrillation on tapping is seen in the pectoral muscles of cases of phthisis, the fibres at the point struck contracting so as to rise in a little heap (see Myoidema). In some grave diseases of the nervous system the muscles react in this way, suggesting irritability of the anterior horns. It may be observed in anterior poliomyelitis, progressive muscular atrophy, meningitis or meningismus, and in traumatic neuroses.

FISSURE.—A fissure is a cleft or crack, which may be either congenital or the result of giving way of the tissues in consequence of injury or inflammation. Congenital fissures are seen in the face, and are described as (1) fronto-maxillary, reaching from the middle of the upper lip, round the ala of the nose to the inner angle of the orbit; (2) commissural, running from the angle of the mouth to the ear (this may be bilateral); (3) anomalous, where the fissure does not follow any of the known lines of the

embryonic clefts, these being all vestiges of the branchial arches.

The treatment for these congenital defects is by paring the edges and suturing, the result being generally good.

Other fissures are apt to occur on muco-cutaneous surfaces; on the nipple, as the result of eczematous inflammation; near the anus, in consequence of violent stretching during the passage of a hard fæcal mass. When the nipple is fissured, it is better to give up suckling, and to touch the fissure with nitrate of silver, when as a rule it heals readily. A fissure of the anus is a cause of great pain until a few fibres of the sphincter muscle are divided by divulsion or incision. The bowel should be kept at rest for forty-eight hours by the insertion of a morphia suppository, and at the end of that time moved by a simple enema or infusion of senna pods.

FISTULA.—A fistula is a canal connecting an internal viscus or cavity with the external surface. The **fistula auris congenita** hardly fulfils this definition, as it is incomplete. It is a remnant of the first branchial cleft, and forms a closed canal in front of the tragus or on the helix. It contains a whitish material.

A **Broncho-Pleural Fistula** may occur after empyema, a bronchus communicating with the pleural cavity. The proper treatment is by opening and draining the chest.

Fæcal Fistula is an opening by which fæces are discharged on to the surface. This may be the result of an operation on the bowel or of the spontaneous opening of an abscess, simple or tubercular. The treatment of such a condition must be surgical, and the possibility of closing the fistula depends upon circumstances.

Fistula in Ano is the result of a simple or tubercular abscess in the ischio-rectal space, which has opened into the bowel, and also upon the surface, often only an inch or

so from the anus. These fistulæ are successfully treated by laying open the canal, except where they are tubercular, when the wound may show no disposition to heal.

Fistula of the Breast may be the consequence of a mammary abscess, and discharge pus, or may follow a wound of a lacteal duct, either by the surgeon's knife, or as the result of inflammation, when the fistula discharges milk. In both cases suckling should be discontinued, when the fistula will heal.

Umbilical Fistulæ result from an opening communicating with some internal cavity after the falling off of the cord. A biliary fistula is rare, and implies communication with the gall-bladder or bile ducts, a fæcal fistula communication with the bowel, a purulent fistula communication with an abscess. A urinary fistula implies a patent urachus. These defects are usually present in weakly children, who do not survive; but should the child live, and the opening not close, a surgical operation may be able to effect a cure.

A **Urinary Fistula** is usually an opening in the perineum in consequence of the bursting of an abscess in the prostate, or of one resulting from inflammation connected with a stricture of the urethra. Sometimes the condition may arise as the result of injury. The cure of the condition depends upon the possibility of re-establishing the course of the normal urinary channel.

Vesico-Vaginal Fistula is caused by sloughing of the anterior wall of the vagina in consequence of prolonged pressure by the head of the child during lingering labour. The successful cure of these fistulæ by plastic operation is constantly accomplished, but often demands the utmost technical skill and ingenuity.

FLAT-FOOT.—Flat-foot is a sinking of the arch of the foot, so that it is lengthened and widened. Standing and walking cause pain, and there is tenderness on pressure.

The condition is due to weakness and relaxation of the ligaments, as the result of acute rheumatism, or less commonly of other acute infections, or of anæmia. It also depends to a large extent upon faulty congenital formation of the foot. Considerable relief is afforded by the use of specially constructed boots, or of such an appliance as Holland's patent sock. Where the case is complicated by the presence of spasm and rigidity, forcible rectification under an anæsthetic has been employed; and where this has failed, attempts have been made by excising part of the tarsus. Flat-foot is sometimes complicated by metatarsalgia (*q.v.*).

FOUL BREATH (Ozæna).—A foul odour of the breath may be due to dental caries, or to oral catarrh associated with the presence of various aerobic microbes (*B. lactis aerogenes*, *B. mesentericus*, *B. pyogenes fœtidus*, *B. proteus fluorescens* or *septicus*); but the worst form is ozæna, caused by chronic atrophic rhinitis, which dates from early youth; and although its causation is undetermined, it probably originates from purulent nasal catarrh started by some acute infectious disease. It leads to wasting of the nasal mucous membrane, atrophy of the turbinate bones, and loss of the sense of smell. The nose becomes blocked by glairy tenacious masses of fœtid secretion, there is generally itching of the nose, with at times headache and catarrh of the pharyngeal and laryngeal mucous membrane.

Treatment, although ineffective as to cure, palliates the infirmity by loosening the crusts with a paroleine and menthol spray, and by thoroughly washing out the nasal cavity two or three times a day with a Higginson's syringe and warm water containing a few drops of menthol solution. Painting the mucous membrane occasionally with nitrate of silver (20 grains to the ounce) is recommended, and any anæmia or debility should be treated by fresh air, good food, iron, and cod-liver oil.

FRAGILITAS OSSIUM.—An abnormal brittleness of bone may be (1) symptomatic of various diseases, and (2) idiopathic. In the first class are all those cases that occur in senility, insanity, rickets, tabes dorsalis, syphilis, scorbutus, tumours of bone (multiple myeloma, *q.v.*), and phosphorus-poisoning; in the second, the obscure hereditary or family disorder in which an extraordinary liability to fracture of bones occurs, so that a single individual may suffer repeated accidents of this kind, a girl of fourteen having had thirty-one, and a man of twenty-nine twenty-seven. There is no known means of preventing their recurrence, but union seems to take place rapidly and firmly.

FROST-BITE (see **Chilblains, Local Syncope, and Feet**). —Frost-bite is caused by low temperature, especially when associated with damp and wind. The part affected is not at first painful, but is white or pale. On the return of the circulation, pain is intense, and the part becomes blue or black. A line of demarcation may form, followed by ulceration or gangrene. The treatment is to avoid rapid reaction by rubbing the part with snow or cold water in a cold room, and gradually warming the body by hot drinks. When some improvement has been effected, the patient may be removed to a warmer room. Drowsiness should be combated by rousing and active massage.

GAIT, CEREBELLAR.—In cerebellar tumours there is a tendency to deviate from a straight line or to stumble towards the affected side, and the patient seeks to correct this by advancing the shoulder to that side.

GANGLION.—In anatomy this word means a normal swelling in the course of a nerve, composed of nerve cells and fibres, and having the importance of a local centre. It also is used sometimes as a name for a lymphatic gland, as in French.

Ganglion as a symptom is a circumscribed swelling or enlargement upon a tendon, generally about the wrist, less commonly about the ankles, toes, or hamstring tendons. It is painless, unless pressed upon or inflamed, hard, elastic, and smooth. It contains synovia, or after inflammation fibrous lymph. It may cause some weakness in the movements of the muscle concerned. It is a hernial protrusion of the sheath of the tendon from simple or tubercular tenosynovitis. It may be harmless, and require no treatment; if its removal is desired, it is not advisable to attempt this by painting it with iodine or blistering fluid, or by bursting it, but to have the sac carefully dissected out.

GANGRENE.—This implies death of a substantial part of the body, in distinction from ulceration, which involves only molecular death. Death of a bone is called **necrosis**; death of a portion of inflamed tissue is **sphacelus** or **slough.** It is generally due to the arrest of the blood-supply from—(1) Constriction—for example, after the application of too tight a bandage, or splints, or plaster of Paris casing, or from wet boots worn continuously, as has happened to our soldiers in Flanders. (2) From diseased arteries, in senile gangrene, atheroma, embolism or thrombosis; diabetic gangrene is a form of senile gangrene. (3) From cold in frost-bite. (4) From vasomotor spasm in local syncope (*q.v.*), or Raynaud's disease, or from the action of sphacelinic acid in ergotism. Less commonly it is the result of heat, from burns or scalds. It occurs in peripheral neuritis, and in disease of the spinal cord, especially in myelitis, causing so-called "trophic bed-sores."

Traumatic or Hospital Gangrene is infective in origin, due to the action of microbes not yet thoroughly identified. This has been recently very rare in civil practice, but has unhappily shown itself among our wounded from the trenches.

Cancrum Oris or **Noma** is a form of gangrene attacking the cheek and gums of ill-nourished children. It is infective in origin.

Epidemic Gangrenous Rectitis is a malignant form of dysentery (*q.v.*) that has caused a high mortality among the natives of British Guiana, and has also shown itself in Trinidad, Brazil, and the islands of the South Pacific, not always sparing Europeans.

Malignant Pustule (anthrax or malignant œdema) is an infective gangrene due to a specific bacillus.

Beriberi Gangrene is usually attributed to the peripheral neuritis which is a feature of this disease.

Gangrene is called "wet" when the blood-supply has not been gradually cut off, and the capillaries are full of blood; "dry" when the reverse is the case, and the tissues become mummified.

In the early stages gangrenous parts are white, cold, and pulseless, later they become green, brown, or black. A line of demarcation forms where the process is arrested, as in that dependent upon arterial disease, but infective or spreading gangrene has no such limit.

The presence of constitutional symptoms is of great importance in considering the gravity of a case of gangrene. As a rule, that due to arterial disease, cold, or vasomotor spasm, has no general symptoms, and while the part affected is permanently lost, somatic life is not jeopardized; but all the infective forms give rise to constitutional disturbance, and have a high rate of mortality.

The treatment of the former group is to wait for the line of demarcation to form, and then to perform such a surgical operation as may remove the dead parts; but this is not absolutely necessary, and in some cases of senile gangrene the affected part may be left wrapped in sterilized gauze without being a cause of offence or harm.

In spreading gangrene there is the most urgent need

to arrest the process, if possible. The sphacelated tissues should be removed by the knife or sharp spoon, and the fresh surface treated by the actual cautery, or by such microbe-destroying means as science has suggested. At the present time this question is being studied. Iodine and pure carbolic acid have their advocates, but neither has proved altogether successful.

GASTRALGIA.—See **Abdominal Pain.**

GASTRECTASY (Dilated Stomach).—Acute dilatation of the stomach sometimes occurs after operations under general anæsthesia, or in convalescence from acute disease, or from injuries to the spine ; sometimes, too, in wasting disease, or after excess in eating or drinking, especially after drinking copiously of cold liquids. The symptoms are sudden vomiting, with acute abdominal pain and distension, collapse, and frequently death. The chief cause is duodenal incarceration by dragging the small intestine towards the pelvis. The treatment is by giving a hypodermic injection of 10 c.c. of camphorated oil (1 in 10), and washing out the stomach with hot water, the patient being placed prone on the abdomen, with the foot of the bed raised about 12 inches.

Chronic dilatation of the stomach may be atonic, occurring in neurasthenia and debilitated states, where it may give rise to symptoms of weight or oppression after food, and is best treated by rest, a Weir Mitchell course, and an abdominal belt.

Or it may be obstructive from pyloric stenosis, when it causes periodic copious vomiting of gastric contents, which often contain sarcinæ. The stomach shows visible peristalsis. It may be relieved by the regular use of the stomach-tube, but the right course is to remove the obstruction by performing gastro-enterostomy.

The size of the stomach is best displayed on the radiographic screen after a bismuth meal, but the diagnosis

may be made by distending the stomach with air, CO_2, or water.

GASTRIC CRISIS.—See **Crisis.**

GASTRODYNIA.—See **Abdominal Pain.**

GASTROPTOSIS.—See **Enteroptosis.**

GASTRORRHAGIA.—See **Hæmatemesis.**

GENERAL PARALYSIS OF THE INSANE.—See **Dementia.**

GENITAL SPOTS.—Certain cases of dysmenorrhœa are related to spots on the turbinated bones and tubercula septi of the nose, which during menstruation may become swollen and tender, bleed easily, and show cyanotic discoloration. Relief of the menstrual pain has followed the local application of cocaine, and permanent cure from cauterizing these regions.

GIANTISM.—The causes of the overgrowth of the body, which is called "giantism," are obscure, but persistent sexual immaturity, a cause of dwarfism (*q.v.*), is one of them. The extremest instances of giants recorded are Macknov, a Russian, 9 feet 3 inches; the "Elsaesser Bauer," 8 feet 11½ inches; Winkelmaier, an Austrian, 8 feet 9 inches; and the "Irish Giant" of the College of Surgeons, 8 feet 4 inches.

Giants may be classed as (1) normal and (2) pathological. The former enjoy good health and a natural duration of life, the latter suffer from some osseous dystrophy, of which acromegaly is the chief. Of all giants, 40 per cent. have been acromegalic; but of acromegalics, only 20 per cent. have been giants.

Giantism is rarely congenital, for, although there have been infants weighing 15 to 20 pounds at birth, and children showing precocious puberty at five or six years

of age, they usually undergo slowing of growth, premature decay, and early death.

Giantism may be associated with leontiasis ossea, osteitis deformans, facial hemiatrophy, scoliosis, and bending of the long bones.

Acromegaly is due to enlargement and functional defect of the pituitary body, and is associated also with persistence of the thymus. It commences in adolescence, and affects both sexes. The symptoms show themselves by thickening of the fingers and toes; the face alters, the supra-orbital ridges project, the malar bones enlarge and the lower jaw elongates, so that the under teeth cannot be opposed to the upper; the larynx increases in size, making the voice deep and rough; there is dulness over the manubrium sterni; the lips, tongue and tonsils hypertrophy; the long bones and later the clavicles, sternum, ribs and pelvis, lengthen and enlarge. The patient suffers from headache, impaired vision, hemianopsia, optic atrophy; the mental condition degenerates, memory becomes impaired and imbecility may finally result. The urine may be increased in amount and contain sugar, while polyphagia and polyuria may supervene. Sexual power is lost, menstruation ceases and in women the breasts atrophy. The course is progressive, but there are intermissions. Life may be prolonged for twenty years from the appearance of the first symptoms and death may occur from intercurrent disease, but the end is always fatal. Treatment has been attempted by the administration of extract of pituitary body and the headache may be relieved by such drugs as acetanilide and caffeine. Diabetic symptoms call for some restriction of carbohydrate food.

GIDDINESS.—See **Vertigo.**

GIRDLE SENSATIONS.—See **Chest, Pain in.**

GLYCOSURIA.—The presence of sugar in the urine does not necessarily give rise to any symptoms to attract attention, so that it may be discovered by chance in the routine examination of the urine. In the absence of other symptoms (thirst, polyuria, wasting), it is quite possibly not diabetic. Alcohol is the commonest cause of this non-diabetic glycosuria. It may be present in the urine the morning after taking half a bottle of champagne; it may be persistent in the urine of the habitual soaker; it is almost invariably present in the urine of the alcoholic on the verge of delirium tremens. The frequency of alcoholic glycosuria explains a great many cases of successful treatment of "diabetes," and so long as the fact is ignored, as it is in many textbooks, the profession will not recognize its existence. Probably, if routine examination of the urine for sugar were more customary, this ignorance would have worse results.

Temporary glycosuria may also occur after injuries (surgical shock), in dyspepsia, and liver disease, or occasionally in brain disease, cerebral tumour, and insanity.

Alimentary glycosuria is caused by eating an excess of sugar, of which our capacity for assimilation is limited, subject to individual variations. It is about 150 grammes (5 ounces). It is not often that glycosuria is produced by this means.

Alimentary diabetes is the name given to those cases of glycosuria accompanied by moderate symptoms (thirst, polyuria, wasting), which are completely controlled by excluding sugar and reducing the amount of starchy food, without abstinence from it altogether. A diet can be constructed containing 1,500 grains of carbohydrates, for example, on which such a patient may maintain his urine sugar-free.

In more serious cases of diabetes the most complete abstinence from carbohydrate does not stop, though it may reduce, the glycosuria and other symptoms, owing

to the fact that the patient excretes, from failure to assimilate, the carbohydrate molecule liberated on breaking up proteid in the formation of urea. In these cases a completely strict carbohydrate-free diet should not be attempted, but a diet should be arranged containing a minimum quantity of carbohydrate in the form of milk and potatoes, which, with starchless bread, may be very supportable; but the patient should not be allowed to eat meat in unlimited quantity, and the alternated diet of Von Noorden may be recommended.

The urine of nursing-women is sometimes found to reduce Fehling's solution, especially just after the child has been weaned. It is due to absorption of milk-sugar (lactose). It is not true that it cannot ferment, as brewer's yeast often contains the necessary enzyme, *lactase*.

GOITRE.—See **Derbyshire Neck, Exophthalmic Goitre.**

GONORRHŒA (see **Vaginitis**).—An acute infective inflammation of the urethra, caused by the gonococcus. Its incubation period is three to five days, but may be shorter. Its symptoms are local burning and itching, with scalding pain on micturition. There is discharge, at first serous, later purulent. The acute stage lasts fourteen days, but slight discharge continues for six or eight weeks, and remains a source of infection. If cystitis follows, which is rare in men, but common in women, there is vesical tenesmus, with frequent micturition. Among the other consequences or complications are epididymitis (*q.v.*), chronic urethritis, chronic vaginitis (*q.v.*), arthritis (*q.v.*), conjunctivitis (*q.v.*), and salpingitis (*q.v.*).

The treatment is by rest during the acute stage, abstinence from alcohol, light diet, local syringing with weak (1 in 1,000) permanganate of potash solution, or 3 per cent. solution of protargol, and the internal use of oil of

red sandal-wood in capsules, three to six daily taken after meals. Wood-wool buckets or towels should be worn, and burnt to prevent the spread of infection. In persistent cases the value of a gonococcus vaccine, preferably autogenous, is indubitable.

GOUT (Goutiness, Uric Acid Diathesis).—Gout is a constitutional disease, characterized by the rapid appearance and disappearance of its acute manifestations. It is caused by luxury, high living, insufficient muscular exercise, the use of malt liquors, and sweet wines. The predisposition to develop the disease is inherited. Lead-poisoning favours the disease when other factors are present, but cannot induce it unaided. Many gouty persons are vigorous, well-formed, florid, handsome people, who, in spite of their attacks of gout, attain to a good old age; but others, and these are perhaps the majority, die prematurely in consequence of the visceral degenerations, especially renal and arterial, that so commonly occur in the subjects of gout.

Acute gout is a specific affection of a joint, usually the metatarso-phalangeal joint of the great toe, less often the instep, ankle, heel, knee, wrist or back of the hand. The part affected is swollen, shiny, tense, bright red, exquisitely painful and tender, pitting on pressure with œdema of the surrounding skin. The attack comes on as a rule suddenly in the night or early morning, but may have been preceded by such premonitory symptoms as gastric acidity and flatulence, torpor, constipation, hiccough, headache, cramp in the calves of the legs, palpitation and irritability of temper. The pain, which is variously described as lancinating, tearing, boring, gnawing, stretching, or squeezing as if in a vice, comes on suddenly with shivering and slight rise of temperature (to 102°). The patient is restless, and rolls about. The paroxysm ends with sweating, and is followed by sleep.

In the morning the joint is tender and slightly swollen. In subsequent attacks recovery is not so complete. There may be recurrence each night, and in these there is a tendency to metastasis. There is slight desquamation of the epidermis over the seat of the attack, and there is often some weakness in the affected limb. The disease usually shows itself after thirty-five. It may occur earlier where there is marked predisposition.

In certain cases there is severe crippling from chronic swelling and stiffness of the joints, the fingers, ankles, knees and great toe especially. Heberden's nodes (*q.v.*) form at the bases of the ungual phalanges of the fingers. The bursæ, fasciæ, and tendons may be affected. Tophi or deposits of urate of soda may form in the cartilages of the ears, below the skin of the fingers, elbows, or in the neighbourhood of the joints, and these may ulcerate, discharging a creamy pus.

The **Gouty Cachexia** is probably the result of chronic interstitial nephritis.

Renal Calculi are often formed and passed, or give rise to stone in the bladder.

Goutiness indicates the occurrence of various ailments seen in those who have a gouty inheritance. These include migraine and other forms of headache, neuralgia, neuritis, myalgia, including lumbago, tender feet (see Feet), local syncope, insomnia, vertigo, and fainting (see Syncope). Other results of the gouty constitution are cardiac irregularity or intermission, tachycardia, bradycardia, angina pectoris, cardiac hypertrophy, early senile changes in the arteries and myocardium, cerebral hæmorrhage, chronic interstitial nephritis, varicose veins, phlebitis and hæmorrhoids, muscular cramps, pharyngitis, constipation, and gall-stones. The urine may show traces of albumin and sugar. Gouty affections of the ear include eczema, deafness, and tinnitus; of the eye, con-

junctivitis, iritis, glaucoma, and retinal hæmorrhage. Gouty teeth are those which look as if rubbed down with a file, so as to be only half their normal length or less. Another gouty affection of the teeth is early loss of the enamel, with punctiform or uniform discoloration. A gouty affection of the tongue is an aching or burning pain, worse at night, on the edge of the tongue near the insertion of the anterior pillar of the fauces. This may last for years, and gives rise to dread of cancer.

The *skin* is liable to suffer from erythema, urticaria, angioneurotic œdema, eczema, and small irritable painful ulcers.

Gouty affections of the *respiratory system* are coryza (morning cold), asthma, laryngitis, and bronchitis.

Gout of the Penis shows itself in chronic patchy induration of the erectile tissue, in eczema of the glans, and in a gouty urethritis.

Gout affects men more than women. The latter are more liable after the menopause, but if they escape acute gout, they suffer much from goutiness.

The prognosis of gouty affections is relatively favourable so long as there are no grave complications of the heart, kidneys, or brain, especially of the kidneys.

The treatment of gout can only be dealt with here very broadly. The best preventives are plenty of exercise and fresh air, with a moderate amount of food, and abstinence from malt liquors and sweet wines. Baths are beneficial, especially hot baths, Turkish baths, hot-air baths, and steam baths. Saline aperients should be used regularly, and at least a bottle of alkaline mineral water (Vichy or Evian water) taken daily. The value of purin-free diet is debatable, but it is certain that neither flesh food nor carbohydrates should be taken in excess, and that experience shows that meat alone is less injurious than excess of sugar and starches. Fruit should be taken regularly.

For the treatment of the acute attack a brisk purge, such as colocynth, is essential, but colchicum should not be omitted. Give colchicum wine (15 minims), solution of potash (30 minims), solution of morphine (30 minims), infusion of calumba (to 1 ounce), three times a day.

GRAVES'S DISEASE.—See **Exophthalmic Goitre.**

GROCCO'S SIGN.—This symptom of pleural effusion is also called "Grocco's paravertebral triangle." It is an area of dulness at the base of the lung in the form of a right-angled triangle, of which the vertical line of the spine for 4 or 5 inches forms one side, the base runs horizontally for a couple of inches or less, and the hypotenuse joins the ends of these two lines. The dulness disappears when the patient lies on the affected side, returning when he sits up, and it is usually better marked when the effusion is on the right side. Over the dull area the breath sounds are feeble.

GROIN, PAIN IN.—The groin is frequently the seat of pain from muscular sprain (rider's sprain), enlarged or tender lymphatic glands from urethritis, sores on the genitals or corresponding foot; from hernia, varicocele and retained testicle; prolapsed, inflamed or tender ovary during menstruation; or from appendicitis. But Sir W. H. Bennett has enumerated thirty conditions in which he had observed pain localized in the groin, so that its special significance is hardly great. Among the less common associations mentioned by him are omental umbilical hernia, stone in bladder, lateral curvature of the spine, osteoma of tibia, old fracture of tibia, flat-foot, and melanotic mole on the sole of the foot.

GUM.—Hypertrophy of the gum is a rare condition seen in children during the first year of life, or in those mentally deficient. The overgrowth tends to hide the teeth, and may ulcerate, giving rise to septic destruction

of the mass. Hypertrophy occasionally results from the irritation of a badly fitting denture, which should be remedied. The hypertrophic mass may need excision.

Growths of the gum may be vascular (nævi), giving rise to bleeding (*q.v.*); or may be simple, warty, papillomatous or malignant (epitheliomatous).

Epulis is a growth that springs from the periosteum of the alveolus, causing a rounded, hard, painless swelling, which may ulcerate or slough. Although sarcomatous in its nature, it is generally non-malignant, and if removed, together with the portion of alveolus from which it grows, as a rule it does not recur.

GUM, BLEEDING FROM.—Bleeding from the gums occurs from trauma, as in tooth-cleaning with a hard brush; but this is slight, unless in the presence of vascular growths (nævi) or epithelioma of the gum, while it occurs spontaneously in debilitated conditions, from pulmonary phthisis and malaria, or in scurvy (scorbutus, *q.v.*) and scurvy rickets, diseases due to defective feeding. In vicarious menstruation (see Menstruation), the abnormal hæmorrhage may take place from the gums.

GYROSPASM.—See **Nodding Spasm.**

HÆMATEMESIS, or vomiting of blood, is met with in many abdominal diseases, but especially in ulcer and cancer of the stomach, cirrhosis of the liver and appendicitis. When blood is vomited, it may also be found in the stools, although the converse does not hold good, **melæna** being at times the only indication of hæmorrhage into the stomach or duodenum. Hæmorrhage from an acute ulcer of the stomach is generally profuse, and is vomited unaltered. From a chronic ulcer it may be so also, but is frequently smaller in quantity and altered in appearance, from having lain some time in the stomach.

In cancer the bleeding is rarely profuse. Its " coffee-

grounds " appearance, due to altered blood, has acquired a certain diagnostic value when it is associated with other symptoms and signs, such as persistent pain, wasting weakness, and loss of appetite.

Hæmorrhage may occur from the mucous membrane of the stomach without any ulcer being present. This occurs sometimes at the menstrual periods—so-called " vicarious menstruation "—or without any definite explanation. A sufficient number of these cases have been recorded to render scepticism no longer justifiable, although they are most disconcerting to the textbook writer, the hæmorrhage being occasionally associated with pain, tenderness, vomiting, and excessive acidity, so that it is impossible to differentiate them on paper from ulcer of the stomach. Many of these cases may be examples of acute gastric ulcer, which are attended with no other symptoms, and give no history of previous stomach trouble. It is, moreover, true that a chronic ulcer may give no trouble until it suddenly determines profuse hæmorrhage by eroding a bloodvessel, so that the accurate diagnosis of the cause of hæmatemesis in a given case is beset by many difficulties.

In cirrhosis of the liver the bleeding is generally profuse and often fatal. Its source is the rupture of a varicose vein in the wall of the œsophagus, the size of the vessel and the extent of the opening favouring profuse bleeding. It may occur suddenly, with a fatal result, without previous symptoms of liver cirrhosis, particularly ascites. The enlargement of the plexus of veins in the wall of the œsophagus is the channel by which the dammed-up blood of the portal system finds its way to the right side of the heart, and this may take place *pari passu* with the growth of obstruction in the liver.

The mechanism of hæmatemesis in appendicitis is not known. It is thought by some that secondary ulceration of the stomach is present, but as hæmorrhage from the

stomach may take place without any breach of surface, this hypothesis is not necessary.

The emergency treatment of hæmorrhage from the stomach, whatever its cause, must be rest, the injection subcutaneously of $\frac{1}{3}$ grain of morphine, and the application of an ice-bag to the epigastrium. The use of fresh horse serum is advised for the purpose of increasing the coagulability of the blood, and "coagulose," a special preparation made by Messrs. Parke, Davis and Co., is now supplied. Where there has been a great loss of blood, an intravenous injection of normal saline may be given to restore the volume of the circulating fluid.

Hæmorrhage from the bowels occurs not only when bleeding has taken place from ulcer of the stomach and duodenum, or in appendicitis, but from typhoid ulceration, dysentery, cancer of the rectum and piles. In the last the blood is not mixed with the fæces, but occurs during defæcation, and the blood is smeared over the fæcal mass. It is especially apt to occur when there is constipation, and straining takes place during the act of defæcation. In dysentery there is the spasmodic pain in the rectum, and the stool contains pus and mucus. In cancer, the desire to defæcate, with frequent discharges of bloody mucus, constitutes a characteristic symptom. In typhoid fever hæmorrhage may take place early in the disease, and is then of small importance; but later, after the second week, it implies deep ulceration, and is frequently a cause of death. Its occurrence is indicated by a sudden fall of temperature, with prostration and rapid pulse.

The treatment of bleeding piles is, in the first place, the regulation of the bowels by the daily use of a laxative, such as infusion of senna pods, confection of senna, agar-agar in various forms, liquid paraffin, with or without 10 per cent. of cascara evacuant, aperient mineral water, small doses of sulphate of soda or sulphate of magnesia dissolved in hot water. Local astringents, such as sup-

positories of tannin, or lead acetate with opium, of hamamelis or adrenalin, may be introduced into the rectum after the bowels have been moved, and the parts cleansed by bathing with cold water. This should be repeated at bedtime, even if the bowels have not acted again. Large hæmorrhoidal masses need surgical aid, and this should be sought whenever, after a reasonable trial, the above-described measures have failed to check the bleeding.

The treatment of dysentery, cancer, and typhoid fever, cannot be discussed in this place, but the emergency treatment of such hæmorrhage, especially in the last case, is an ice-bag applied to the abdomen and a hypodermic injection of morphine ($\frac{1}{3}$ grain).

HÆMATOMA AURIS (Othæmatoma).—This condition, which is sometimes known as the **insane ear,** is undoubtedly more common amongst the insane, but is not restricted to them. In the early stage effusion takes place between the two layers of the cartilage of the external ear, causing considerable swelling, which may rupture at the edge, allowing the sero-sanguinolent contents to escape; but as a rule the effusion is gradually absorbed, with consecutive shrinkage or puckering of the auricle, which becomes permanently deformed. Its occurrence in insanity no doubt occurs from quite slight injuries, and does not imply any undue violence on the part of the patient or his attendant; but this accident does occasionally happen to not insane young men from violence at football or boxing, so that the existence of this deformity should not cast a slur upon the mental condition or history of any individual. The treatment that is recommended is the application of blistering fluid to the surface as soon as the swelling is seen. If rupture should occur, the cavity should be washed out with a weak solution of iodine, and the two surfaces kept in apposition by pressure.

HÆMATOPORPHYRINURIA. — Hæmatoporphyrin is present in traces in normal urine, but it occurs sometimes in such quantity as to make the urine the colour of port wine. It is clear, highly acid, and remains a long time without undergoing decomposition. There is usually no albumin or hæmoglobin present. It has occurred most frequently in women, and the only known cause is sulphonal-poisoning, but evidence of the use or abuse of this drug has been at times absent. The associated symptoms have been abdominal pain, constipation or diarrhœa, cyanosis and occasionally fatal collapse; but as a rule the symptoms have subsided and the case has ended in recovery.

HÆMATURIA is the passage of bloody urine. Bleeding, apart from the act of micturition, should not be included, as it is simply hæmorrhage from the penis, or from some source in the immediate neighbourhood of the urethra from trauma—for example, in fracture of the pelvis and rupture of the urethra. Blood mingled with the urine may be the consequence of bleeding into the bladder from the prostate, from growth, tubercle, or stone in the bladder; from parasites (Bilharzia); from injury or from growth or stone in the ureter or pelvis of the kidney; from purpura, scurvy, malaria, or pernicious fever; or, lastly, from the renal substance caused by growth, tubercle, inflammation, congestion, or occasionally by embolism or infarction of the kidney, or from what has been called "renal hæmophilia," where no structural change in the kidney can be detected even on microscopical examination.

The differentiation of these various sources of hæmorrhage can only be made by the history of the case, and by careful analysis of the symptoms, examination of the patient and of the urine. In cases of injury, the history and the external examination of the patient may be suffi-

cient to show from what part of the urinary passages the bleeding is taking or has taken place. Hæmorrhage from the substance of the kidney is indicated by blood-casts of the renal tubules, and if it is inflammatory, there are also hyaline or epithelial casts. Severe hæmorrhage from the renal substance may occur in advanced cases of chronic Bright's disease (contracting kidney), but this is attended by the cardio-vascular changes of this disease, the heart is hypertrophied, the radial pulse is incompressible or its tension greatly increased, there may be albuminuric retinitis, occipital headache, and vomiting.

Tubercle of the kidney may cause pain resembling that of renal calculus, with blood, pus, and tubercle bacilli in the urine. A marked symptom is frequency of micturition, which suggests that the bladder is affected, but this does not seem to be always the case. There may be very little pus in the earlier stages, but the number of leucocytes is much greater than occurs in simple nephritis, while there is no œdema or rise of blood-pressure.

Profuse bleeding from the kidney may be caused by cancer of the renal substance, and be attended by few other symptoms. There may be deep tenderness in the loin, or tumour, and there are casts of the ureter formed of blood-clot, which may give rise to pain when passing down to the bladder. Epitheliomatous or papillomatous growths in the pelvis of the kidney may be indistinguishable by their symptoms, and the diagnosis be only made by a nephrotomy.

Stone in the pelvis of the kidney usually causes a dull, fixed pain in the loin, with pus and blood cells in the urine; but from time to time there are attacks of more severe pain, renal colic, when the stone becomes engaged in the entrance to the ureter. The pain of renal colic radiates down to the groin round the hip, sometimes down the thighs, and vomiting is common. The chemical composition of the stone may be determined by finding

crystals of uric acid, oxalate of lime, or cystin in the urine.

Growth in the wall of the bladder may cause suprapubic pain or tenderness on deep pressure. The bleeding is often intermittent, is affected by exercise, and in the interval the urine may be clear, but microscopic fragments of the growth may reward a careful search. The diagnosis is, however, to be made by the cystoscope.

Tubercle of the bladder is a very painful disease, with frequent micturition and hæmorrhage. It, too, is diagnosed mainly by the cystoscope, though tubercle bacilli can be found in the urine, which contains also blood and pus.

Hæmorrhage from the prostate is generally free, and often attended by pain in the passage of clots, the pain being referred to the glans. The enlarged prostate can be felt on examination by the rectum. As a rule, the enlargement is caused by simple hypertrophy, which occurs very commonly in men over fifty-five years of age. Cancer of the prostate may occur earlier. It is very hard, tender on pressure, and causes more marked frequency of micturition than results from simple hypertrophy. It is, fortunately, rare, and runs a comparatively slow course, so that, as prostatectomy is now so well understood and successfully performed, it is to be hoped good results may be obtained by early operation.

Parasitic hæmaturia only occurs in those persons who have lived in countries where it is endemic, and chiefly among children. It is readily diagnosed by microscopical examination of the urine, as the ova can be easily seen and recognized even by those who are only familiar with drawings of them.

Hæmaturia occurring as a symptom or complication of any general disease is not in itself of serious importance, except in so far as it may indicate the grave or pernicious character of the primary disorder.

Purpura hæmorrhagica may be attended by rather free bleeding from the bladder.

The presence of blood in the urine in heart disease may be the only sign that renal infarction has occurred, but there may be pain in the loin, and the urine should show renal or ureteral blood-casts, the latter only being found when the bleeding into the urinary passages has been free.

Renal hæmophilia was the name by which the late Professor Senator described a case of persistent severe renal hæmaturia in a lady where, after the failure of all medical means of arresting the bleeding, which could be seen with the cystoscope to be coming from the orifice of one ureter, the kidney was excised. The operation was effectual, and the patient recovered; but the most minute examination of the kidney failed to disclose any structural alteration to account for the hæmorrhage.

The treatment of hæmaturia must depend in part upon its cause and origin. As a general rule, rest must be insisted on, and the case fully investigated, if the source of the bleeding is any way doubtful. There is no hæmostatic drug upon which it is possible to rely with any confidence, but as bleeding commonly stops of itself, or by the operation of natural hæmostatic processes, various styptic remedies for internal administration or local application enjoy a reputation, yet are apt to fail us when we need them most.

In renal hæmorrhage dry cupping to the loins is often practised, and the local application of ice should always be tried whenever the bleeding comes from a part near the surface. The hypodermic injection of adrenalin chloride solution (1 in 1,000), 2 to 15 minims diluted, should be given in the neighbourhood of the bleeding source, as its action is largely local. Morphine quiets the patient and permits rest, but is dangerous where advanced kidney disease exists. Turpentine has a great reputation,

but neither in large nor in small doses is it to be relied on; but it certainly may be the cause of hæmaturia when administered in small quantities, or even when its vapour is inhaled, as by the workers in a varnish factory.

Hamamelis, which forms the basis of hazeline and Pond's extract, is often given by the mouth to check bleeding, but its real action is local, and it is efficiently employed only when it can be directly applied to the bleeding-point.

Iron, especially the liq. ferri. perchlor. fort., is a powerful astringent employed with great success to check bleeding where it can be brought into contact with the source of the hæmorrhage. By the mouth it has no hæmostatic action, but helps to restore the blood. The old preparation of iron alum (ferric ammonio-sulphate) has been much used as an astringent to check hæmorrhage, and probably everyone has seen apparently good results from it. It is usually given in 5-grain doses three times a day after meals, and may be combined with sulphate of magnesia, dilute sulphuric acid, and peppermint-water, where it is not desired to allow the remedy to cause constipation. It is more than doubtful whether it exercises any remote action upon hæmorrhage.

Calcium lactate in doses of 10 to 15 grains every four hours for forty-eight hours is a modern remedy given with the object of increasing the coagulability of the blood. Fresh blood-serum (rabbit, horse, or human) acts as a hæmostatic by supplying the hæmostatic ferment when applied to the bleeding part, or it may be administered in doses of 20 c.c. hypodermically or by the mouth. It is useful in cases of hæmophilia, purpura hæmorrhagica, and other examples of persistent bleeding. Larger doses up to 40 c.c. may be given, and ordinary diphtheria antitoxin may be employed in an emergency, provided it is of recent date. The dose should be repeated two or three times on the same day until the bleeding is controlled,

and again once a week for three or four weeks. "Coagulose" is the hæmostatic ferment of the blood prepared by Parke, Davis and Co. from normal blood-serum. It possesses the advantage of retaining its hæmostatic properties unchanged for a long time. It is supplied in glass bulbs containing a dose equal to 10 c.c. of serum. The powder must be dissolved in 6 to 8 c.c. of sterile water at 100° F., which may be conveniently injected into the bulb through the needle of a hypodermic syringe. The stopper of the bulb is then replaced, and the bulb shaken until the powder is dissolved, when the solution is drawn up into the syringe and injected under the skin. The dose recommended to begin with is the contents of one bulb, and this may be repeated in two or three hours, if the bleeding has not stopped completely, but in all serious cases a second dose is advised.

Ergot is no longer looked upon with favour as a hæmostatic apart from bleeding from the uterus, as its action is that of a powerful stimulant of unstriped muscular fibre, so that it may do harm by raising the blood-pressure. Where the bleeding can be controlled by stimulating unstriped muscles to contract, its use is allowable; but it is a double-edged weapon, and if we are more or less in doubt as to the actual source of the bleeding, it is safer to avoid its use.

In hæmorrhage from the bladder, this organ may be washed out with a solution of hamamelis, or perchloride of iron, or adrenalin in iced water. Hæmorrhage from the urethra may be controlled by the same means, aided by compression.

HÆMIDROSIS.—Bloody sweat is referred to under Vicarious Menstruation (*q.v.*). The condition is very rare, and any alleged case should be carefully investigated. It might occur in hæmophilia (*q.v.*).

HÆMOGLOBINURIA.—The passage of hæmoglobin in the urine in consequence of the breaking-down of the red blood-corpuscles is met with in malarial and other fevers, notably in tick fever (*q.v.*), also as an effect of poisons, and in paroxysmal hæmoglobinuria (*q.v.*).

Winckel's Disease is an epidemic form of hæmoglobinuria that occurs in infants during the first ten days after birth, and is associated with jaundice and gastro-enteritis. It is a septic disease, and is very fatal.

Blackwater Fever is hæmoglobinuria in association with malarial fever. At one time it was regarded as a complication of severe but ordinary malarial infection. Later on it was held to be a specific form of fever, but more recently there is a disposition to revert to the older view. The hæmoglobinuria is attributed to the action of hæmolysin developed by the patient's tissues in response to long-continued malarial infection. This view indicates the desirability of vigorous treatment by means of quinine, and, if possible, removal to a non-malarious district.

Paroxysmal Hæmoglobinuria is caused by the action of cold on the blood in the vessels of the peripheral circulation. The stasis of the circulation at a low temperature favours the union of an amboceptor with the red corpuscles, and when these return to warmer parts of the body, a hæmolysin is formed, from the combination with complement, breaking down the corpuscles and setting free the hæmoglobin. The symptoms are shivering, sometimes with high temperature, and the passage of dark-coloured urine containing hæmoglobin. The attack lasts from a few hours to a few days and is liable to return in cold weather. The tendency may persist throughout life, but is more often lost. It usually attacks adolescent males. Treatment seems to have little influence upon the tendency. Modern views as to its causation, ex-

plained above, suggest the possibility of preparing an antitoxin.

HÆMOPHILIA.—The subjects of this hereditary condition are commonly called "bleeders" (*q.v.*). It affects all classes, but is relatively rare in women. It generally shows itself by the second year of life. Its symptoms may be classed as—(1) Surface hæmorrhage, spontaneous or traumatic; (2) interstitial hæmorrhage; (3) joint affections.

Surface hæmorrhage may take place from skin mucous or serous membranes. It may be the result of a cut or abrasion, or a small operation—*e.g.*, extraction of a tooth or circumcision—or spontaneous, as epistaxis or bleeding from gums; while after puberty it may take the form of hæmorrhage from the bowels, hæmatemesis, hæmaturia or hæmoptysis, or of hæmorrhagic effusion into the peritoneal cavity.

Interstitial hæmorrhage is bleeding into the muscles or beneath the skin, causing ecchymosis or hæmatoma, the last being at times very large. There may be petechial spots in the skin.

The joint affections consist of hæmorrhagic effusion into their cavities, with pain, sometimes a rise of temperature to 103° or 104°. These attacks are apt to recur in cold, damp weather, and eventually lead to stiffening and deformity of the joints, like those of chronic rheumatoid arthritis.

There is secondary anæmia, in consequence of the loss of blood, the red cells being moderately diminished and the leucocytes increased (15,000 to 24,000). Coagulation is slow.

The treatment for the bleeding is rest, pressure by a compress of lint soaked in turpentine, with opium or morphine to insure rest. Hypodermic injection of 20 to 40 c.c. of fresh serum or coagulose (see p. 191) should be

tried, also adrenaline may be applied locally. Internally, calcium lactate, 10 grains every four hours for one day. Large doses of the tincture of perchloride of iron, with sulphate of soda as an aperient, were recommended by Wickham Legg. In the subsequent treatment of the case good food and fresh air, with iron and cod-liver oil, are indicated.

HÆMOPTYSIS.—Spitting of blood is generally associated with pulmonary tuberculosis, but the blood may come from the mouth, nose, pharynx, larynx, trachea or bronchi, and the first problem to be solved is the source of the bleeding.

When the nose is the source, there is as a rule some discharge of blood from the anterior nares. The blood is not frothy, but is mixed with nasal mucus or saliva. It is often in the form of clots, which have formed in the cavity of the nose, and are then loosened, slip into the pharynx, and are expectorated.

Blood from the pharynx is commonly seen in those who suffer from violent cough. It is in the form of streaks in the sputa unmixed with the mucus. On inspection, dilated venous capillaries can be seen on the back of the pharynx, and the blood is derived from the rupture of one of these.

Hæmorrhage from the tonsils is suggestive of malignant disease or of the presence of an ulcer, usually syphilitic.

Hæmorrhage from the mouth usually has its source in the gums, from which it can be seen to be oozing, if these are carefully inspected. The bleeding may be encouraged or even started by sucking, so that malingerers and hysterical girls may by this means produce an apparent hæmoptysis. The blood is in small amount, mixed with saliva, but not frothy, and is not brought up with a cough. Where it is genuine, the case may be treated by an astringent mouth-wash, or be remitted to the care of a dentist.

Blood may be coughed up from the trachea from a

leaking aneurism, from the presence of parasites (paragonimus) met with in Japan and China, from infarction of the lung in heart disease (mitral disease), in pneumonia, in malignant disease of the lung, and, above all, in pulmonary tuberculosis.

In the first, complete rest, an ice-bag to the chest, a hypodermic injection of morphine, abstinence from all food, and the administration of fresh horse serum or coagulose, are about all that we can do. The danger is that the leaking may be the prelude to a large and fatal rupture, but cases have been known to leak from time to time over a long period.

In parasitic hæmoptysis, or **paragonimiasis,** no satisfactory treatment has been discovered. The condition is diagnosed by the restricted geographical distribution of the disease, and by the detection of the microscopic eggs in the sputum, which is rusty brown in colour, and has a peculiar odour. The amount of blood is rarely large. Physical examination only gives positive results in severe cases, when there may be flattening of the chest-wall, diminished breath sounds, occasionally bronchial breathing, with dry or moist râles. The patient becomes anæmic, suffers from dyspnœa on exertion, and the case terminates by death from exhaustion. The only treatment that affords a chance is removal of the patient beyond the reach of reinfection, in the hope that the parasites may die and be coughed up; but nothing is known definitely as to the life of the individual parasite, and the source of infection has not yet been traced, although the parasite is supposed to enter the body in infected food or water.

Hæmoptysis from **pulmonary infarction** is generally seen in advanced cases of mitral disease. Its occurrence is associated with pain in the lung, and with the evidence of infarction in other organs (spleen, kidney)—*e.g.*, hæmaturia. The bleeding is moderate in amount, and mixed

with mucus. Its treatment must be that of the primary disease. The hæmorrhage is not so severe as to be in itself a source of danger, and probably tends to relieve the engorged lung. A hypodermic injection of morphine may be appropriate, but this complication is commonly met with in the terminal stage, when the heart is failing, and life under any treatment cannot be prolonged.

Hæmoptysis as a symptom of **pulmonary tuberculosis** owes its importance to the frequency with which it is the prelude to other manifestations of the disease, although, in the light of our present knowledge, we cannot admit the old doctrine of *phthisis ab hæmoptoë*. The amount of blood varies. Sometimes it is profuse, bright red, and frothy; more commonly it is scanty, mixed with the mucus of the sputa, but generally bright in colour. The diagnosis is confirmed by the discovery of the tubercle bacillus, and by the attendant fever, while physical signs of tubercular consolidation sooner or later make their appearance. The immediate treatment is rest, ice to suck, an ice-bag to the chest, the hypodermic injection of $\frac{1}{3}$ grain of morphine, and the administration of fresh horse serum or coagulose by the mouth. Subcutaneous injections of emetine in small doses (0·04 centigramme) have been used by Flandrin, and their value is confirmed by Raeburn. This dose is given twice weekly for three or four weeks in succession, but the symptom has a way of disappearing under any treatment, so that further experience is needed to establish the claims made for this remedy.

HÆMORRHOIDS.—Piles, or hæmorrhoids, are vascular growths about the anus. They are called "external" or "internal," in accordance with their position outside or within the sphincter ani. Internal piles are formed of varicose enlargements upon radicles of the inferior hæmorrhoidal veins. They are rounded, tense projections, and as a rule are dark purple in colour. The mucous mem-

brane in the neighbourhood is generally congested or cyanosed. A rarer form is red, more vascular, bleeds readily, and is sometimes called the "raspberry" or "bleeding pile." Bleeding usually takes place from the general surface of the congested mucous membrane, which is relaxed and readily undergoes prolapse. It is then gripped by the sphincter, and causes pain until reduced, which may be done easily with a pledget of cotton-wool dipped in cold water.

External piles are hypertrophied folds of the mucocutaneous tissue of the anus. These are liable to become inflamed or the seat of a small hæmatoma, when they give rise to much discomfort and pain.

Piles are caused by all conditions which produce congestion of the portal system, constipation, gastritis, cirrhosis of the liver, heart disease, gout and pregnancy. They may be seen in association with enlarged prostate, possibly in consequence of local pressure on the circulation, but quite probably only as a coincidence.

The treatment of piles must, so far as possible, follow the causal indication, and this can to a large extent be done by abstemious diet, avoiding alcohol and unloading the portal system by the daily use of saline aperients, sulphate of magnesia, or sulphate of soda, or the old mixture of sulphate of iron and magnesia (sulphate of iron, 3 grains; sulphate of magnesia, 40 grains; dilute sulphuric acid, 5 minims; peppermint-water, to 1 ounce). Locally, an ointment stiffened with cocoa butter (ol. theobromæ) may contain calomel (40 grains to the ounce), and if there is bleeding, hamamelis or adrenaline solution may be added. The parts should be bathed with *cold* water night and morning, if possible after the bowels have acted. The paper used should be soft, and printed paper should never be allowed. Any prolapse should be reduced at once by pressure with a pledget of cotton-wool dipped in *cold* water. Hot water should not be used for bathing piles.

If the internal piles are bulky or bleeding, or the sphincter is so relaxed that prolapse is constantly recurring, a surgical operation should be performed. When an external pile is inflamed or a hæmatoma forms, it must be laid open. As a rule these folds do not require removal, but atrophy and disappear when the internal piles are cured.

HAPHALGIA.—A form of paræsthesia met with in hysteria, where contact with certain substances (brass, copper) causes not merely a sense of touch, but intense pain.

HAY FEVER (Hay Asthma) (see **Asthma**).—Certain persons are peculiarly susceptible to the irritation of the pollen of plants, chiefly grasses, of which twenty-five different kinds have been incriminated; while the pollen of privet, lily of the valley, rape, thistle, rose, lime, plane, and ragweed, seem to be capable of producing this trouble in particular cases. The symptoms are lacrimation, photophobia, sneezing, irritation of the nose, coryza, cough, dyspnœa, stridor, cyanosis, and urticaria. In some cases the mucous membrane of the eyes and nose, in others the larynx and bronchi, seems chiefly to suffer, causing asthma. The condition lasts six or eight weeks, probably as long as the pollen is present in the air, as relief can be obtained by going to sea or farther north, where the grass is not yet in flower. As a rule the attacks begin in June. The disease is limited to temperate climates, and perhaps to certain races. The predisposition is hereditary. The educated classes and dwellers in towns appear to suffer more, probably because they do not become immunized. Pre-existing catarrh and structural nasal defects in some instances are important factors, as cure has followed the removal of spurs of the turbinate bones and the like.

Treatment has been attempted, besides the surgical

procedures just mentioned, by immunizing horses with injections of pollen, and so obtaining an antitoxin from the serum of their blood. This method has resulted in a partial amount of success only, as even the best results have only been obtained after a long course begun some weeks before the flowering-time, and this has had to be repeated each year. This comparative want of success is not surprising, for, although the principle may be right, the antitoxin must be specific in its action—that is, only preventive for the particular kind of pollen employed for immunizing—yet we know that many kinds can produce the disease. Temporary relief is given by cocaine, but the effects of cocaine-poisoning are worse than the disease. Eucaine is neither so effective nor so injurious. A 5 per cent. spray and an ointment composed of menthol (5 grains), eucaine (5 grains), oxide of zinc (20 grains), lanoline (½ ounce), and liquid paraffin (to 1 ounce), have been recommended. Adrenaline inhalant, a solution of adrenaline in sterilized liquid paraffin sold by Parke, Davis and Co., may be used as a spray. Another suggestion is a spray of chromic acid ($\frac{1}{16}$ to $\frac{1}{8}$ grain to 1 ounce of water). It is claimed that this has been perfectly successful in some instances.

HEADACHE.—Pain in the head may arise from many causes, local or remote, or from organic or functional disease. Where it is caused by local organic disease, or is a symptom of some general toxæmic condition, it is of secondary importance, but may be noteworthy as an indication leading to the detection of the underlying malady. For example, persistent occipital headache may be due to latent but advanced chronic Bright's disease, or general or frontal headache may point to the onset of an acute infection, especially if the patient is not subject to headaches.

Headache may be caused by inflammation of the brain

or its membranes. It is then intense, usually general, accompanied by vomiting, and is soon followed by delirium and coma. The pulse is slow and irregular, the pupils sluggish, and there may be sweating and a rise of temperature. In cerebral abscess or tumour there are usually localizing symptoms pointing to a lesion of a particular part of the brain, or optic neuritis is present. In aneurism of a cerebral artery there may be, in addition to the signs of intracranial growth, a throbbing hemicrania and a blowing murmur audible by the patient or on auscultation by the physician, but such a condition is rarely recognized. Robert Louis Stevenson died of the rupture of a cerebral aneurism which had caused no symptoms. Many neurotic subjects are distressed by a systolic blowing sound very audible when they lay their heads on the pillow at night. It may be due to anæmia, but is often caused by hyperæsthesia of the acoustic apparatus, possibly the result of excessive use of tobacco, tea or coffee.

Syphilitic headaches are worse at night, are localized, and the scalp is tender on percussion.

Hysterical headaches are generally limited to the vertex or temple, more rarely the occiput. There is marked hyperæsthesia of the scalp, and there are usually other evidences of hysteria present.

Neurasthenic headaches are brought on by fatigue of body or mind, and are chiefly frontal. The pain is moderate, and is usually described as pressure or constriction.

Headaches are sometimes dependent upon some bad habit, and assume a false appearance of periodicity owing to the cause—*e.g.*, the Monday-morning headache which follows Sunday dinner.

The relation of headaches to uncorrected visual defects is well known, and a careful examination of the eyes under atropine is essential in all cases where they are

habitual. It must not be supposed that the sufferer is always aware of any defect of vision, as by straining sight may be satisfactory, and it is only under atropine that the real optical condition of the eyes is revealed.

Headaches may be caused by decayed teeth setting up reflected pain in other branches of the fifth nerve, such pain being especially in the forehead and eyes.

Headache from exhaustion due to fatigue, want of food or sleep, or sexual excesses, is to be attributed to impaired blood-supply. The pain is general and severe, but is relieved by rest, hot food, and suitable stimulants.

Constipation is often the cause of splitting headaches. A gentleman told me that he took a compound colocynth pill (4 grains) every night in order to get an action of the bowels, failing which he suffered from a headache which prevented him working. It is probable that constipation by itself is not competent to cause headaches, as the liver should prevent the access of any toxins to the general circulation; but where the action of this organ is defective, the most common, but not the only, cause being the abuse of alcohol, this barrier is removed, and toxæmic headache results.

Migraine, a corruption of the French *hémicrânie*, is an exceedingly common type of headache, often running in families, the burden of some of the more gifted among men and women. The attacks are periodical, often once a week, and may be preceded by constipation, drowsiness, fidgetiness (the wife of a patient told me that she knew when an attack was coming on by his wanting to tidy up his papers), dimness of vision, hemianopsia, or flashes of light. They usually begin on awaking, or soon after, by pain and throbbing in one or both temples. The face may be pale or flushed, and while the head is hot, the patient complains of chilliness. His pulse is not quickened. The sufferer is obliged to rest, usually lying down in a darkened room, the pain being continuous, but liable

to exacerbations, and is very severe. Nausea and vomiting are common, hence the popular name "sick headache," the vomiting matter being sour mucus followed by bile. Occasionally there is diarrhœa. The mouth is dry, the urine scanty, and there is no desire for food. Among the less common symptoms are clonic convulsions of the eyelids during the attack, or paralysis of the third nerve, causing ptosis, external strabismus, and dilatation of the pupil, which may last some days. See case reported by me some years ago (the *Lancet*, 1882, vol. ii., p. 345), where the patient suffered from repeated attacks.

The headaches usually begin at puberty, and continue for many years, but are less severe as life advances, and finally may cease altogether. They may be temporarily made worse at the menopause, and often occur in women at each menstrual period.

Great benefit is obtained in many cases by accepting the restrictions of a purin-free diet, as originally advocated by Dr. Alexander Haig. This means abstinence from meat, poultry, game, and fish, although a few mouthfuls of sole, cod, plaice, and herring, which contain little purins, may be allowed once a day. The patient must also avoid alcohol in all forms, tea, coffee, and cocoa, oatmeal, asparagus, lentils, peas, haricots, and broad beans. He may have eggs, cheese, butter, cream, and milk, any cereal food except oatmeal, all fruits and vegetables with the exceptions already noted, spaghetti, macaroni, biscuits, cakes, and puddings. On this diet not only may the attacks be averted and life made much more enjoyable, but vigorous health is maintained, and a *joie de vivre* experienced to which the patient has been long a stranger.

In other cases abstinence from common salt (sodium chloride) is beneficial, the prohibition extending to salted articles of food. Periodical fasting, combined with the use of a purgative mineral water, as recommended by

Guelpa, should be tried by distinctly gouty plethoric subjects. He advises a fast extending over three days, during which the patient takes nothing but a bottle of warmed Hunyadi Janos water daily. This course may be repeated at intervals of ten days or more, as is found necessary.

Many drugs have been warmly advocated from time to time. One of the best is the effervescing powder of phenacetin and caffeine citrate made according to the formula of the B.P.C., or acetanilide, the compound acetanilide powder (acetanilide, 7; caffeine, 1; and sodii bicarb., 2).

HEART DISEASE.—The primary function of the heart is that of a pump to maintain the circulation of the blood. To perform this adequately, the driving-force of its muscular wall must be sufficient, and its valves must not be so defective as to increase the work beyond the capacity of the walls. Valvular defects alter the sounds of the heart, but do not necessarily impair the function of the heart so seriously as to give rise to symptoms so long as the muscular wall can respond to the greater demand, therefore ultimately the condition of the myocardium is the all-important factor.

Failure to maintain the circulation of the blood, if extreme, causes pallor, tinnitus, faintness, syncope, and even sudden death; but chronic deficiency of heart-power causes dyspnœa, marked on exertion, œdema of the ankles, capillary stasis, diminished secretion of urine, cough, indigestion, and reduced power of mental work. These symptoms resulting from heart disease are discussed under separate sections (see Albuminuria, Anasarca, Angina Pectoris, Ascites, Cheyne-Stokes Respiration, Clubbing of Fingers, Cyanosis, Dropsy, Dyspnœa, Embolism, Epistaxis, Hæmoptysis, Syncope).

HEBEPHRENIA.—The dementia of puberty, a uniform progressive mental failure.

HEBERDEN'S NODES.—At the bases of the ungual phalanges of the fingers of elderly, gouty, or rheumatic persons two painless, rounded knobs may form on the bone. They do not interfere with movement, but are unsightly and persistent.

HEMIPLEGIA.—Paralysis of one side of the body, involving the arm and leg, is called "hemiplegia," of one limb "monoplegia," and of both legs "paraplegia." Hemiplegia is usually the result of a hæmorrhage, embolism, or thrombosis in the internal capsule on that side of the brain opposite to the paralyzed limbs; monoplegia may be caused by a growth or other limited lesion in the cortex of the brain on the opposite side, or to inflammation involving the anterior horns of the grey matter in the same side of the spinal cord (poliomyelitis); while paraplegia is due to some destructive lesion involving the entire substance of the spinal cord by compression, hæmorrhage, or inflammation (myelitis) (see Monoplegia, Paraplegia).

The arm and leg are cold, flaccid, and powerless; when raised from the bed, they fall back helplessly; the plantar reflex is extensor (Babinsky's sign), the knee-jerk is increased, sensation is often diminished or lost at first, but is usually regained in a day or two.

In right-sided hemiplegia the patient is unable to talk or articulates with difficulty. There may be some alteration in the pupil on the same side as the brain lesion.

Transient hemiplegia may occur after an epileptic fit, after a convulsion caused by a tumour in the brain, or in general paralysis of the insane (paralytic dementia) or from uræmia.

Hemiplegia may be simulated by a skilful malingerer, but in genuine paralysis the flaccidity of the limb, its

coldness, the extensor reflex, and exaggerated knee-jerks, are present, and are not easily imitated. A good test is to place one hand under the heel of the sound leg, and ask the patient to raise the paralyzed foot from the bed. He will profess to be unable to do this. Then put the hand under the alleged paralyzed heel, and ask him to raise the sound foot. This he will do promptly in order to emphasize the difference, but in doing so he will press the heel of the paralyzed (?) foot into the hand of the observer, which he could not do if the limb were really paralyzed.

A paralyzed limb should be wrapped in cotton-wool and bandaged. The diet should be low, without alcohol or animal food. The bowels should be opened by an enema or a dose of castor oil. A mixture containing 5 or 10 grains of iodide of potassium for a dose should be given three times a day, and the case watched. If there is good reason to suspect syphilis, mercury should be given by adding $\frac{1}{12}$ grain of biniodide of mercury to each dose of the mixture.

When convalescence is established, the limb should be treated by daily massage and faradism to improve its nutrition and to exercise the muscles; but the amount of recovery depends ultimately upon the extent of the lesion in the brain, and cannot be directly affected by any measures applied to the limb.

Hysterical hemiplegia is always incomplete. It is usually confined to the leg, and the patient drags or shuffles the foot in walking. There may be marked loss of sensation to touch and pain (pinpricks) all over the affected side. The reflexes are not altered, or are difficult to elicit. Other signs of hysteria are generally to be detected.

HERMAPHRODITISM.—The strict meaning of this term is the presence in the same individual of the at-

tributes of both sexes, both anatomically and functionally. The alleged cases of true hermaphroditism have occurred in fœtuses or in malformed children who have barely survived their birth.

False hermaphroditism is much less uncommon, and such cases as occur may be regarded as examples of doubtful sex. Mr. Lawson Tait's advice in such cases to bring the child up as a boy is sound, and the safest way to avoid future trouble. There have been many cases of mischief arising from an imperfectly developed boy being brought up as a girl, but a woman may successfully play the part of a man. There are several authenticated cases of women having successfully assumed the character of a man, of which one of the more recent and best-known was that of Inspector-General James Barry, who died in 1865, and was post mortem proved to be a woman. Her sex had often been suspected, and in one instance it is said she fought a duel in consequence of some remarks of the kind, which she resented.

The difficulties of deciding the sex of a child usually arise from extreme cases of hypospadias (*q.v.*). These malformations tend to recur in families. In one instance two " sisters " were finally shown to be boys.

HERNIA, PAIN IN.—An uncomplicated hernia is not painful.

Pain may be caused by traction on the mesentery, by omentum passing into the sac, or by inflammation of the gut.

A strangulated hernia is painful unless the bowel has become gangrenous, when pain ceases.

An umbilical hernia with a narrow distensible sac may be the seat of violent abdominal pain at an early stage before any external tumour has appeared.

HICCOUGH.—Singultus, hiccough or hiccup, is an irregular clonic spasm of the diaphragm, attended by a

peculiar snapping noise, produced by narrowing of the glottis.

It is sometimes attended by pain around the diaphragmatic attachments, and in weakened conditions may, when persistent, cause exhaustion. It may be the result of irritation of the phrenic nerve by a growth in the neck, but the usual cause is slight indigestion and stomach flatulence ; it occurs from excess of alcohol, in many acute diseases, particularly in peritonitis and in typhoid fever, while it is met with in various affections, especially of the abdominal viscera. Occasionally it recurs periodically at each menstruation, or it may be associated with nervous diseases, such as epilepsy, uræmia, and hysteria.

Some cases have shown remarkable persistence, one lasting for twenty-six weeks, being constantly present whenever the patient, a boy, was not asleep.

Most attacks can be arrested by holding the breath, or by taking several deep inspirations, or by pressure upon the epigastrium, so as to prevent the descent of the diaphragm. When it occurs after abdominal operations, nurses have a method of stopping it by turning the patient gently on his side, usually the right side. Tickling the nostrils, sipping any liquid, or a few drops of aromatic spirits of ammonia in water, inducing sneezing or coughing, are all popular remedies. In persistent cases, hot fomentations to the epigastrium or thorax, traction of the tongue, chloroform inhalations, ether, turpentine, amyl nitrite, nitroglycerine, carminatives, galvanism to the nape of the neck, and blistering or painting with iodine over the trunk of the phrenic nerve, have been recommended.

HIPPOCRATIC FACIES.—The classical description of the face of a dying man: "The sharp nose—'His nose was as sharp as a pen' (the death of Falstaff, 'Henry V.,'

Act II., Scene 3)—hollow eyes, collapsed temples, cold and contracted ears, with lobes turned outwards, skin of forehead rough, parched, and distended, the colour of the whole face green, black, livid, or leaden."

Other signs also mentioned by Hippocrates are the eyelids partly open during sleep, and the lips cold, blanched, relaxed, and pendent.

HIPPOCRATIC FINGERS.—See **Clubbed Fingers.**

HIPPUS.—Clonic spasm or alternate dilatation and contraction of the iris is called "hippus." It is seen in some cases of chorea and in "nodding spasm" (*q.v.*).

HOARSENESS.—The harsh or rough voice induced by various disorders of the vocal cords. The commonest cause is catarrh, acute or chronic. Excessive use of the voice may determine a chronic catarrh, but it is often the accompaniment of chronic pharyngitis, the effect of alcoholism, the hoarse voice of the drunkard being well known. Tuberculosis and malignant disease of the larynx cause hoarseness, while intrathoracic tumours occasionally, by interfering with the nervous supply to the cords, may do so, although as a rule abductor paralysis of one cord does not affect the voice.

HONEY-POISONING.—The classical example of poisoning from honey is that of the army of Xenophon during his famous retreat. They suffered from irritant, intoxicant and narcotic symptoms after eating wild honey. The honey of Trebizond, on the Black Sea, still sometimes possesses these properties, which are attributed to the flowers of *Azalea pontica*. The spring honey of the bees in Eastern Nepal, derived from a species of rhododendron, and that obtained in the Coorg jungle of the Madras Presidency, have been known to cause urtication, headache, prostration, nausea, and thirst. The missionary Moffat had a similar experience from wild

honey in South Africa, while in the United States the honey obtained from the mountain laurel has an evil reputation.

Medicinally, honey has been used as a laxative and demulcent.

HUNGER.—The craving for food is called "hunger," and is only present in health in the absence of proper nourishment. In pathological conditions it may be more or less constant, and independent of the supply of food. The craving for food is stimulated by increased metabolism from cold or exercise, but where this is the result of fever, the associated toxins may interfere with the manifestation, although during convalescence there is a marked effort to make up for the deficit which has accrued. Appetite differs from hunger in degree rather than in kind. All healthy people have appetite, but many never have any opportunity to get hungry, as they are subject to no great stimulus, and have their meals so regularly that hunger is anticipated. Loss of appetite is a departure from health, but may be the effect of the abuse of tobacco or alcohol, or the use of opium.

Excessive appetite is met with in disease, especially in diabetes, sometimes in Graves's disease, in insanity, hysteria, and neurasthenia, or as a transient condition in convalescence from acute disease.

Diminished appetite is the rule in all acute and chronic infections, septic conditions, and fevers; in chronic intoxication from lead, arsenic, or mercury; in anorexia nervosa associated with hysteria or insanity; in depressing emotions; in cancer, cachexias, and "terminal" conditions of serious disorders.

Loss of the sense of satiety leads to excessive eating, but is not accompanied by any feeling of hunger, nor is the restriction of food, by which the condition may be controlled, irksome to the patient. This loss of the sense

of satiety is called **akoria,** and bears a close relation to gout.

Uncontrollable hunger, or **bulimia,** may be a terrible disease, as the craving for food cannot be satisfied. Even opium may fail to allay the pangs.

In the diseases already mentioned in which hunger is a symptom, the condition presents no features of special difficulty, and scarcely calls for treatment; but in **bulimia** there is not only the desire for food, but this is accompanied by weakness and pallor, or a disposition to faint. In the eagerness of the paroxysm, these unfortunate people disregard social propriety or even legal obligation.

The condition has been ascribed to epilepsy, cerebral tumour, syphilis, Reichmann's disease, cancer, plastic linitis of the stomach, the presence of tapeworms, neurasthenia, pregnancy, sexual excesses, but it is not always possible to determine any cause. The treatment then becomes purely symptomatic. Arsenic in the form of liquor arsenicalis, cocaine, bromides, opium, belladonna, chloral, chloretone, cannabis indica, and hypnotism, find their advocates; but the condition is too rare for accurate conclusions to be drawn from therapeutic experiments, in which there is so much dissimilarity as well as uncertainty regarding the conditions. With regard to diet, it may be said that Polar travellers find that fat or oil is essential to the satisfaction of appetite, and that a considerable proportion of non-digestible ballast—*e.g.*, reindeer's hair (!)—assuages the pangs of hunger, so that the food should be chosen to fulfil these two indications by allowing plenty of fat and cellulose:

Breakfast : Coarse oatmeal porridge, with cream; brown or wholemeal bread and butter; eggs, boiled or poached; mackerel or herrings; fat bacon or ham; an apple or an orange; coffee, with cream.

Luncheon : Salmon, mackerel, or herrings; duck or goose; fat pork or veal; lettuce, endive, celery, tomatoes,

cucumber, leeks, French beans, asparagus, turnips, carrots, spinach, onions, or beetroot, boiled, stewed, or made into salad with oil; stewed fruit, with cream; brown or wholemeal bread, or biscuits, with butter and cheese; water or mineral water.

Tea : China tea, with cream; brown or wholemeal bread and butter; cakes; jams or preserves.

Dinner : Soup, with vegetables; in other respects as at luncheon.

Dessert : Dates, figs, raisins, oranges, melon, plums, peaches, apricots, apples, pears.

Note.—Soup should be made without meat stock. No meat extracts should be allowed, and the quantity of lean butcher's meat should be as small as possible, fat taking its place.

HYDRARTHROSIS (Hydrops Articuli). — Where the swelling of a joint is the most prominent feature, where there is little or no pain, in chronic serous synovitis caused by repeated sprains or by gout, rheumatism, infective arthritis, or spinal disease, the condition is spoken of as "hydrarthrosis," or water on the joint.

HYDRIOTHIONURIA.—The presence of sulphuretted hydrogen in the urine has always been accompanied by *Bacillus coli*, indicating that there was some communication with the bowel, and this is probably its only source.

HYDROCELE.—Effusion into the tunica vaginalis or the spermatic cord, or in the female into the canal of Nuck, may be congenital or infantile, or more commonly is acquired in adult life as the result of injury. The slow, painless swelling is as a rule pyriform, smooth, elastic, translucent, dull on percussion, transmitting no impulse on coughing. It is usually unilateral, but may be bilateral, and is sometimes constricted or hour-glass shaped. The fluid is clear, pale amber, and highly albuminous;

but in old-standing cases the translucency, which is an important point in diagnosis, may be impaired by thickening of the wall, or by the fluid becoming bloody or milky. In infantile and congenital hydroceles there is a communication with the general peritoneal cavity, so that there may be an impulse on coughing, the swelling may extend into the inguinal canal, or the sac may be emptied on pressure or after lying down.

An encysted hydrocele of the epididymis is a lobulated swelling compounded of small cysts, which contain watery fluid and spermatozoa.

The modern treatment of hydrocele is to dissect out the parietal part of the sac, and cut it off close to the testis and epididymis.

HYDROCEPHALUS (see **Meningitis**).—"Water on the brain" is an effusion of cerebro-spinal fluid in the ventricles and subarachnoid space in consequence of inflammatory or congenital obliteration of the foramina of Majendie and Luschka, or of the veins of Galen.

It may be *acute*, from tubercular meningitis (see Meningitis), or *chronic*, from congenital syphilis or cerebro-spinal meningitis.

The symptoms of chronic hydrocephalus in a young infant are enlargement of the head, bulging of the forehead, widening of the fontanelles, the scalp is distended and shining, the superficial veins are dilated, the skull is more or less translucent, and the child cannot hold up its head. There is usually mental deficiency, and dulness or apathy, but sometimes the child seems bright. As a rule death occurs after a few months, but life may drag on from year to year. The legs are weak and spastic, the optic nerves may become atrophied, with consequent blindness. Complete recovery is rare.

In secondary cases there are signs of pressure, the head may enlarge, the legs are weak, and the knee-jerks ex-

aggerated. Occasionally there is a constant drainage of fluid from the nostrils, which is a source of discomfort, but prevents more serious symptoms.

As the early cases are usually syphilitic, antisyphilitic remedies should be begun early. Lumbar puncture may be tried, but as the communication of the intradural space with the ventricles is obstructed, it is not very effective. Drainage by other surgical operations has been tried, but the results have not been encouraging.

HYPERIDROSIS.—Excessive sweating may be general or local. General sweating occurs in constitutional disease, after rigors (*q.v.*), in malarial fever, septicæmia, tuberculosis, influenza, where it may persist in the form of night-sweats for many weeks, or it may be a persistent chronic affection in intemperate subjects. Local sweating may be restricted to the distribution of a nerve—*e.g.*, the supra-orbital—or to a part of the body, the hands or feet (see Bromidrosis), the scalp in rheumatism, the axillæ in anæmia. General hyperidrosis may be checked by the use of belladonna, atropine, or Dover's powders internally, and by sponging with dilute vinegar or acetic acid. Alcohol, coffee, and tea should be forbidden.

HYPERNEPHROMA.—Children between the ages of nine months and nine years may present swelling of the bones of the skull, proptosis, ecchymosis of the eyelids, anæmia without leucocytosis, progressive signs of intracranial pressure, optic neuritis, blindness, and exhaustion, followed by death. The temporal fossæ are filled by the growths. There may be precocious sexual development and obesity. A tumour can be felt in one or other loin. The cause of this condition is malignant hypernephroma of an adrenal body, with metastases in the skull, ribs, and vertebræ.

There is a congenital condition in which the child is

imbecile and epileptic, caused by secondary growths in the brain (tuberose sclerosis, *q.v.*).

HYPERPIESIS.—This name has been given by C. Allbutt to prolonged high blood-pressure in elderly persons, leading to hypertrophy of the muscular coats of the blood-vessels. He also calls it senile plethora. W. Russell attributes it to food-poisons, excess of proteid, and alcohol. The treatment recommended is the use of pressor drugs, such as trinitrin, erythrol tetranitrate, spirit of nitrous ether, or of iodide of potassium, atropine, or phenacetin. If the heart is feeble, digitalis or strophanthus may be added.

HYPERPYREXIA.—Any temperature over 105° is called "hyperpyrexia." It is occasionally met with in acute rheumatism, in typhoid fever, typhus fever, Malta fever, malaria, sunstroke, pneumonia, tubercular meningitis, cerebral tumour, chorea, trauma, and hysteria.

Very high temperatures have been recorded in hysteria. In one case of mine the temperature rose to 112° in the rectum, where it was taken by the nurse. The patient did not know it, and she made a rapid recovery from the hysterical paraplegia for which she had come under treatment.

In acute rheumatism the temperature may rise very high—108° or more—the patient becoming comatose.

The treatment for high temperature in fevers is cold affusion or cold pack (a sheet wrung out of iced water frequently renewed), but in less extreme conditions cold sponging suffices.

HYPOSPADIAS, EPISPADIAS.—These are congenital malformations of the urethra, in the former the canal being open in some part of its course from the perinæum to the glans penis; in the latter the opening is dorsal, and is usually confined to the glans, but may be associated

with ectropion vesicæ (*q.v.*), and continuous therewith. These deformities may be accompanied by other defects in the formation of the penis. In some Polynesian and Australian tribes an artificial hypospadias is made for the purpose of inducing sterility. Various plastic operations for the cure of these malformations have been performed without great success.

HYSTERIA.—The former notion that this neurosis bore some relation to the uterus is now abandoned, as it occurs in both sexes.

It is a condition that is almost impossible to define, as authorities differ respecting its limits, some including phenomena that others would class as neurasthenia. Many rely upon the diagnostic value of certain "stigmata," that are not always present, while a third school allows the name only to symptoms curable by suggestion.

As one of its most striking characteristics is its power of imitating organic disease (neuromimesis), its symptoms are innumerable, and are always increasing. It is quite commonly associated with organic disease, of which it forms a troublesome complication. Any functional disease may be called hysteria, some persons making little distinction if the patient is a woman. Again, others confound hysteria with imposture (*q.v.*), so that it is dangerous to speak of a case as hysteria, lest the word should be resented as an imputation of dishonesty.

The mental and moral perversion that so often exists in these cases bring the condition into close relation to insanity, and some of the most difficult cases to manage are those on the border-line. They are intolerable or impossible at home, but capable of perfect conduct with strangers; they are very susceptible to attention and flattery; wayward, perhaps staying most of the day in bed, and coming down without stockings or with hair not put up; untruthful, violent in temper, selfish, and exact-

ing; yet they have no delusions, and their conduct is accurately calculated to gain their own ends. They cannot be certified as insane, or, if certified, would be discharged from any asylum, as they are capable of behaving with perfect propriety when they choose. When opposed, they may manifest any hysterical symptoms—screaming, epileptiform convulsions, catalepsy, hemianæsthesia, contractures, visceral troubles—in order to get their own way.

Psychically, the prominent feature in hysteria is the desire to create sympathy. This motive induces some of them deliberately to sham disease, to manufacture wounds, skin eruptions and bruises, to abstain from food, to vomit, and so forth; but there are other cases in which the same motive acts subconsciously, and in perfect good faith they become paraplegic, hemiplegic, or voiceless. This last group is the most satisfactory to treat, as, if the symptoms are dealt with seriously, they respond rapidly, and do not relapse.

Hysteria is hereditary, and has many relations with other neuroses; but the constitutional condition may be acquired from alcoholism, mercurial and lead poisoning, and to some extent from any debilitating cause. The most effective treatment is thorough and complete isolation, with appropriate exercises and electricity to cure any motor defects. Contractures should be reduced under a general anæsthetic, and the limb put on a splint for a few days. Suggestion is useful.

ICHTHYOSIS (Fish-Skin Disease).—This condition is congenital, or arises in early infancy. The skin is more or less rough and scaly, hence the name. It is often associated with asthma, and the patients suffer much from cold. The disease is intractable, but hot baths and persistent local applications of plasters may effect considerable improvement.

ILEUS.—In this condition there are distension of the abdomen, pain, partial or complete obstruction, even flatus not passed, and vomiting, finally becoming fæcal. These symptoms may be caused by any condition capable of causing obstruction, but in idiopathic ileus post-mortem examination shows nothing beyond distension of the bowel. It may come on after abdominal section, the reduction of a hernia, or a severe accident, and minor degrees are common in such circumstances. There are various preventive and remedial measures in favour with individual operators. The patient is usually propped up in bed, and the bowel cleared out by an enema of castor oil and turpentine.

IMMUNITY.—The power of resisting the attacks of pathogenic microbes is probably not inherent, for each new epidemic finds the vast majority of our population susceptible to its attacks, and those who appear to escape may probably have acquired immunity from attacks which were not strong enough to make them ill. A population among which a disease is endemic acquires more or less immunity to that disease from the formation of antitoxins (alexins) in the blood as the result of infection, which is constantly taking place; but if for any reason the disease ceases to be endemic, the immunity is soon lost. New-comers always suffer most from endemic diseases, and conversely diseases that are regarded as benign among people who suffer from them habitually prove virulent when introduced where they are unknown or have disappeared. Illustrative examples are measles, which had a high rate of mortality when it broke out among the Fijians fifty years ago, and our recent experience with influenza, which returned in 1889-90, after having been absent for forty years.

The commonest form of immunity is that acquired naturally by an attack of the disease, but the extent and

duration of the protection conferred vary with the disease, in some few instances being life-long. This process is imitated artificially by inoculation, the problem being to confer the maximum of protection with the minimum of disturbance to health. The third method is by the introduction into the blood of serum from an animal which has been thoroughly inoculated, and whose blood is consequently charged with alexins. By the serum treatment an individual attacked by the disease is aided to resist its toxins, the curative serum being called "antitoxin." The success of the principle has been abundantly demonstrated in diphtheria, but the antitoxin must be given sufficiently early to counteract the toxins of the disease before they have had time to do serious harm.

INCONTINENCE OF URINE.—Control over the bladder depends upon the sphincter muscle, and the due performance of its function the result of—(1) its anatomical integrity, (2) the absence of any local interference with its mechanism, and (3) the activity of the nerve centres which control its operations. For example, prostatic disease may so impede its action as to prevent perfect closure, and permit slight dribbling; while in myelitis affecting the lumbar enlargement of the spinal cord, the sphincter may be paralyzed, and the urine flow away as it reaches the bladder. Lastly, in mental impairment, in congenital idiots the habit of controlling the bladder may not have been acquired, or in dementia and senility the habit may be lost.

The overdistended bladder of an unconscious patient, from failure of bladder sensations to reach the brain, or of prostatic enlargement, is a form of incontinence due simply to the bladder being so full that the pressure overcomes the resistance of the sphincter. It is cured by carefully emptying the bladder, and preventing the recurrence of overdistension.

Incontinence of urine during sleep that occurs in children is discussed elsewhere (see Nocturnal Enuresis). In epilepsy, or even during transient epileptic vertigo, the sphincter may relax, and urine be passed. Some children and young persons suffer from nervous incontinence caused by emotion or excitement. It usually passes off as they get older, but may be checked by small doses of bromide and belladonna. Bromide of potassium (10 grains), tincture of belladonna (10 minims), spirit of chloroform (15 minims), water (to 1 ounce), to be taken twice or thrice daily, or previous to the occasion which induces the nervousness. For example, a young lady was troubled by incontinence when she went to pay calls with her mother, but a dose of bromide taken before going out enabled her to get through these ordeals in comfort.

INDICANURIA.—Urine which is of a dark brown colour may contain indican, a product caused by the higher oxidation of indol. With strong hydrochloric acid and a few drops of a saturated solution of bleaching-powder, indigo blue, or indigo red, is formed when indican is present. By shaking with chloroform, the pigment is extracted, and the demonstration improved.

The presence of indican implies excessive proteid decomposition, but it is generally met with in the course of intestinal disorder, constipation, obstruction, cancer, typhoid fever, more uncommonly in putrid empyema, fœtid bronchitis, or pulmonary gangrene.

INDIGESTION.—See **Dyspepsia.**

INFANTILISM.—See **Dwarfism.**

INFECTION (see **Immunity**).—Infection is the process by which the material through which diseases are communicated is introduced into the bodies of the healthy, or in another sense the word implies the material itself.

The latter has been proved for the most part to consist

of bacteria or minute vegetable organisms, which may take the form of rods (bacilli)—*e.g.*, the tubercle bacillus —or spheres, or ovoids (cocci), streptococci forming clusters, and staphylococci forming chains, such as the meningococcus that causes cerebro-spinal fever. In a smaller number of instances the pathogenic organisms belong to the animal kingdom (protozoa), like the sporozoon of malaria, the spirillum of relapsing fever, or the amœba of dysentery.

The old distinction between infection and contagion has been abandoned, as all contagious diseases are infectious, and in some infection is only communicated by contact; but in many the *materies morbi* may be introduced from the air by inhalation, or by ingestion in food or water. In so far as insects play a part in infection, this is by inoculation in the case of sucking and biting insects, or by acting as unconscious carriers of microbes on their legs, so as to contaminate food and other ingesta. Lastly, infection may be conveyed intentionally by inoculation with a protective purpose (see Immunity).

Infection may be *local*, as in tetanus and diphtheria, the organisms forming a focus where they lodge, and causing the general symptoms of disease by the diffusion of their toxins through the circulation; or *general*, the microbes entering the blood, and being distributed to all parts of the body, as in septicæmia. After the introduction of the infection, a certain interval elapses before the toxins of the disease are produced in sufficient amount to cause symptoms, this interval being called the *incubation* period. It is reckoned from the date of exposure to the first rise of temperature. The incubation period varies in different diseases, and even in the same disease, in proportion to the dose introduced, and also because exposure and infection are not in all cases simultaneous.

Predisposition to infection exists widely in young persons, and to certain diseases in particular individuals,

while resistance or immunity (*q.v.*) is exhibited more or less generally in the old and individually at all ages. Resistance is lowered by general ill-health, starvation, loss of blood, and fatigue.

It was formerly believed that two infections could not coexist in the same person at the same time, but many examples of this have been noted, especially of scarlatina and diphtheria.

Prophylaxis against the spread of infection is attempted with more or less success by general sanitary measures, the provision of abundant pure air, water, and milk; by street-cleaning, and by inculcating the need for cleanliness in houses, clothing, and person; and by the provision of public baths and wash-houses. To check the spread of infectious disease, cases are notifiable to the Sanitary Authority, and means are taken for isolation of the sick, quarantine of contacts, and disinfection of clothing, bedding, and premises.

As children are peculiarly liable to infection, rules have been generally adopted by school authorities insisting upon the absence for definite periods of those who have suffered from any of the infectious diseases scheduled, and of those other members of the household attending school who have been in contact with that or any other case of infectious disease. The return of the scholars is only permitted on the production of a certificate in prescribed form, signed by a qualified medical practitioner, and the General Medical Council has impressed upon the profession the gravity of giving a certificate which is known to be untrue.

Infection may be specific—that is, due to the same organism, as in tuberculosis—or non-specific, due to different organisms, as in suppuration.

Infection may kill by the poisonous effect of its toxins on the brain or heart, or by local mischief, such as hæmorrhage or perforation of the bowel in typhoid fever.

INFLAMMATION.—The long recognized signs of inflammation are redness, heat, swelling, and pain (rubor, calor, tumor, dolor), but to these may be added impairment of function. The microscope shows that the redness and heat are caused by hyperæmia, at first the local circulation being accelerated, but later retarded. The swelling is the result of the exudation of serum, followed by leucocytes, and finally by the proliferation of the fixed tissue corpuscles. These last and the leucocytes form pus when they are accumulated in sufficient quantity, but this occurs only in response to a strong stimulus, such as the presence of pyogenic microbes, or the injection of sterilized turpentine for the production of "fixation" abscesses. Inflammation by causing pain and impaired function plays an important part in the symptomatology of disease.

INOCULATION (see **Immunity**).—*Preventive* inoculation is attempted in smallpox, plague, yellow fever, cholera, typhoid fever, and tetanus.

Curative inoculation is attempted in hydrophobia, tuberculosis, plague, tetanus, and snake-bite.

INSANITY (see **Delusion, Dementia, Delirium, Mania, Mania a Potu**).—Insanity, or disorder of mind, is not susceptible of brief definition, as it can only be inferred from conduct or speech, which indicates inability to appreciate facts or to draw correct conclusions from them, or to abstain from acts that are reprehensible or injurious to the patient himself or to others. The classification of insanity is almost interminable, but two great divisions are universally recognized: (1) Acute insanity, (2) chronic insanity. Each of these may again be divided into three forms: (1) Mania (*q.v.*), characterized by excitement of action and speech; (2) melancholia (*q.v.*), marked by depression, apathy, often by refusal to speak or eat; and (3) dementia (*q.v.*), or mental failure.

Congenital insanity, or **idiocy,** is the persistence of the mentality of the infant. **Imbecility** marks arrest of mental development in the condition of a child or adolescent, but falling short of average adult intelligence.

Acquired insanity is the result of constitutional disease, which may be acute—for example, fever—or chronic—*e.g.*, phthisis—or is the result of a specific infection—*e.g.*, syphilis—or the consequence of shock, injury, the puerperal state; or the effects of poisons—*e.g.*, alcoholism—or of physical changes at certain times of life—*e.g.*, puberty, the menopause, and senility.

Alternating Insanity is a condition in which mania may alternate with melancholia.

Cyclical Insanity.—An attack of mania may be followed by melancholia, and that by a longer or shorter period of sanity.

Confusional Insanity is marked by doubt and hesitation (*folie du doute*), inability to decide upon the simplest course of action when alternatives are presented.

Delusional Insanity is that in which delusions form a prominent feature (see Delusions), especially those of persecution and exaltation.

Impulsive Insanity is characterized by want of control of purpose and of will. There is an uncontrolled impulse to repeat the same word, or act, or gesture; to break or burn things; to steal, kill, or commit suicide (see Phobias and Manias).

The principal symptoms of insanity are delusions, want of control, and defect of will.

Insanity is undoubtedly a family disease, and its various causes are more likely to give rise to mental trouble in persons possessing this predisposition.

INSECTS, BITES AND STINGS OF.—The bites of bugs (*Cimex lectularius*) are dull, reddish, rounded, or oval

papules, marked by a darker point where the attack was made. They are readily recognized, but their identity is sometimes indignantly disputed by mothers, jealous of their reputation for cleanliness, and the argument is not seldom used that another child sleeping in the same bed showed no marks. Bugs live in woodwork, and can conceal themselves in such narrow cracks that they are not dislodged by ordinary scrubbing and washing of floors or furniture, so that the cleanest housewife who has become the tenant of a house which harbours these pests may try in vain to get rid of them by soap and water. The answer to the argument based on the immunity of the second child is that a large number—probably the majority of people—escape the attentions of these horrible insects, and may never see them or know of their existence from personal experience.

The irritation of the bites is allayed by the application of a drop of strong solution of ammonia. The insects themselves can be destroyed by the use of strong solution of crude carbolic acid or lysol to the woodwork, and by blowing pyrethrum powder into the cracks and crevices.

Harvest-bugs (*Trombidium*) are met with in the fields in autumn, and cause a good deal of trouble to children with bare legs, or to women with thin stockings. Their bites are very irritating, and may cause a good deal of scratching. They adhere to the skin, but may be dislodged by rubbing with benzine. The sting of the bites may be allayed by ammonia, but this is painful if there has been much scratching, when lead lotion (liq. plumbi) should be used instead.

Fleas are more indiscriminating in their attention, but dog-fleas do not bite human beings. Pyrethrum powder gets rid of them, but they are sometimes found in great numbers in new houses, so that it may take some time to banish them. They are probably brought in the

hair used to mix with the plaster of the rooms, and the eggs hatch out the following summer.

Bees seldom attack unless they are rudely interfered with, and the sting is with most people a momentary pain, or can be readily relieved by ammonia. Cases, however, happen in which grave local and constitutional symptoms follow. The part swells up, and becomes very painful. Collapse, fainting, and unconsciousness may occur, the symptoms resembling those of snake-bite. On the other hand, bee-keepers acquire an immunity, so that the stings produce a minimum of local effect. The treatment should be the local application of ammonia, and the internal administration of whisky, or brandy, or aromatic spirit of ammonia (spirit of sal volatile), or ether. The pain may be allayed by painting with camphor-chloral, or menthol-chloral, or by an ice-bag.

The stings of wasps and hornets do not differ in essence. They are more painful, but seldom serious. The treatment is the same as that given for bees'-stings.

Scorpion and centipede stings are more severe, and cause much local pain and swelling, but are seldom fatal. The treatment is locally by ammonia or camphor-chloral, internally by brandy or whisky if there is faintness or collapse.

The bites of mosquitoes, midges, and gnats vary much in their effects on different individuals. In some, the result is a purely transient annoyance; in others, each bite forms a painful, reddened swelling that remains for days, and is disfiguring. New-comers to a mosquito-infested place always suffer more than old residents. It is certain that the bites cause more irritation to them, but the insects, for some reason, appear to pay them more attention. Now that the importance of standing water is recognized, and that puddles, pools, tanks and water-butts are known to be breeding-places for mosquitoes and gnats, much may be done by way of prevention. Sand

full of midge larvæ is sometimes brought up from a river and put down outside houses, thereby insuring a plentiful supply of these pests. The use of wire-gauze shutters and doors is most effectual in excluding insects from houses, and in malarial districts should be regarded as a necessary hygienic precaution.

The bites should be treated by applying alcohol (eau de Cologne), ammonia, or tincture of witch-hazel (hazeline, Pond's extract).

It is now more than suspected that the bites of insects are potent factors in transmitting diseases. Plague is spread by fleas from rats and marmots, relapsing fever by bed-bugs and body-lice, typhus and kala-azar by bugs.

INSOLATION (Sunstroke). — The symptoms of sunstroke may be induced by direct or indirect sun heat. Contributing factors are humidity and stillness of the air, lowness of level, working or marching in the heat, alcoholism and overeating, tight clothing and depressed health from any cause.

The effects are seen in two forms. The less serious is **Heat Shock,** in which the symptoms are lassitude, muscular pains, pallor, giddiness, nausea, weak pulse and clammy sweats. There may be sudden loss of consciousness, with dilated pupils and rapid, shallow respiration. The temperature is normal or subnormal.

The graver form is **Heat Fever,** in which the prominent symptom is hyperpyrexia, the temperature rising rapidly to 106° or 109°. Such cases may occur quite suddenly in the night, when the patient is in bed, the first indication being stertorous breathing, and the patient is found to be comatose, with flushed face, injected conjunctivæ and bounding pulse. The conjunctival and other reflexes may be absent, the urine scanty and albuminous. In other cases there may be some premonitory symptoms such as giddiness, headache, weakness, muscular pains,

vomiting and quick pulse — in fact, the symptoms of heat-stroke, which may pass into heat fever, the temperature rising rapidly, so that the first form should be watched closely and the temperature taken at short intervals. This condition is frequently fatal after a few hours or a few days and a fatal relapse may occur even after partial recovery.

In any case, convalescence in this form is slow. Troublesome nervous symptoms may persist, such as insomnia, incapacity for work, impaired memory, excitability, intolerance of alcohol and lowered resistance to heat. On the other hand, recovery from most cases of heat-stroke takes place in a day or two and with moderate care no after ill-effects are experienced.

The prophylaxis of these attacks involves good ventilation, light clothing, a simple dietary, with little flesh food, abstinence or extreme temperance in the use of alcohol, sleeping in the open air, early rising, frequent bathing, with shampooing and anointing the skin with cold cream (ung. aq. ros.), attention to which would conduce greatly to the comfort of residents in the tropics.

The treatment of heat-stroke should be removal to a cool place, taking off all superfluous clothing, the administration of a teaspoonful of sal volatile or brandy in water; if necessary, artificial respiration and a mustard poultice to the epigastrium. The temperature should be watched.

In **Heat Fever** the temperature must be reduced by cold affusion or cold pack, the bowels should be emptied, and digitalin given hypodermically. Venesection may be advantageous. The patient, if he recovers, should be sent to a cool climate and the nervous sequelæ treated by rest and careful regimen.

INTERMENSTRUAL PAIN, OR MITTELSCHMERZ.— This is a pain recurring between the menstrual periods of unknown origin, by some supposed to be toxæmic, by

others variously attributed to hydrosalpinx, to hyperæmia of the uterus, or to varicosity of the pelvic veins. So far, little has been devised to relieve it. Intermenstrual or premenstrual fever has been observed in patients suffering from phthisis, and may be due to tuberculous salpingitis, though it is also attributed to periodic disturbance of the heat-regulating centre.

INTOXICATION.—See **Drunkenness.**

IRRITABLE BLADDER.—See **Micturition.**

ISCHURIA OLIGURIA.—See **Urine.**

ITCH.—Itch, or scabies, is a parasitic skin disease caused by the presence of the *Acarus scabiei*—an insect which burrows into the epidermis diagonally, and lays its eggs at the bottom of the furrow. These furrows are readily seen as fine lines about $\frac{1}{6}$ inch long, situated generally in the webs of the fingers, or less commonly of the toes, or about the hands and forearms. At the end of the furrow is a small pointed vesicle. As these lesions itch abominably, the skin becomes the seat of a polymorphous eruption, consisting of scratches, scabs, pustules and eczematous patches, the result of injuries by rubbing with the hands and tearing with the fingers and nails. This itching, polymorphous eruption is fairly characteristic, the late Dr. Tilbury Fox being accustomed to say that a polymorphous skin eruption that did not itch was probably syphilis, but one that did itch was scabies. In the case of the poorer class (tramps), to whom in this country scabies is usually confined, the want of personal cleanliness may lead to the extension of the eruption all over the body; but we occasionally meet with the disease in well-to-do people—for example, invalids who have returned from India, having been tended by natives, among whom the disease is widely

spread, or infants who have been handled by kindly but not clean admirers.

The treatment is to send the patient to have a sulphur vapour bath, after which he must dress himself from head to foot in clean clothes, and send all those he has taken off to be sterilized by heat. A single bath of this kind, properly carried out, generally suffices to effect a complete cure, but any dermatitis remaining may require the application of a simple anodyne ointment (ung. zinci).

Where a sulphur vapour bath cannot be obtained or administered, as in the case of infants, the clothes must be changed and sterilized by dry heat or boiling, and an ointment of storax (ung. styracis, storax 1 part, lard 1 part) applied. An efficient but disagreeable application is the compound sulphur lotion (Vleminckx's solution), made of 1 part of sulphur, 2 parts of lime, and 20 parts of water boiled together and allowed to cool. This is painted over the whole body with a large, flat brush.

ITCHING.—Pruritus, or itching, is a common symptom, often trifling; it may be of the gravest importance. It is a sensation that is difficult to analyze or define. It starts from the epidermis, and is produced by very slight movements over its surface, such as the crawling of a fly or the tickling of a hair; but it is violent in its effects, calling for the most energetic rubbing or scratching to counteract it, so that the skin in the part affected is liable to suffer considerable damage.

Prurigo is the name given to the disease which consists in itching without any pre-existing changes in the skin. Any lesions that are present are the result of rubbing and scratching. There are many varieties, to which a number of names are attached—prurigo senilis, prurigo adolescentium, prurigo æstivalis, prurigo hiemalis, prurigo ferox, prurigo mitis.

Pruritus is often the word used, and we have, according to locality, pruritus ani, pruritus scroti, pruritus vulvæ, pruritus plantaris, pruritus palmaris, pruritus universalis. No age is exempt, but the old are, perhaps, especially liable; and while the very poor suffer much, the well-to-do and the rich do not escape.

General pruritus occurs in jaundice, however caused, and seems to be due to the cholæmia, also in gout, in the uræmia of chronic Bright's disease, in Graves's disease, lymphadenoma and intestinal toxæmia. It is also thought to be associated with the neurotic temperament, and certainly the irritable genus bears the small ills of life badly, and is therefore more likely to rub and scratch into serious dermatitis any trifling local itching than persons of more placid humour.

The effects of rubbing and scratching are manifold—simple reddening or erythema, raised streaks or wheals, papules, excoriations, scaly spots, vesicles, scabs and pustules. These are the results of injury, and are not the initial disease.

The most terrible form of this disease is that called Hebra's prurigo. It begins as a rule at an early age, but he denied that it was congenital, and it lasts throughout life. Its cause is unknown, but it appears to be hereditary, being unknown in America, except in persons of European descent. The subjects are generally poor, and consequently badly nourished. It sometimes improves after puberty, especially if surrounding conditions of life and food are better. It is always worse in winter, and better in summer. The lesions tend to assume the form of broad, flat papules, more or less fused together, in the early stage pale, but later becoming red, pigmented, and scaly, like a dry eczema. It causes constant irritation, but the worst tortures are more or less paroxysmal or intermittent, or the patient would be driven mad from persistent torment and want of sleep. These unhappy

beings are scolded in childhood, jeered at by their schoolfellows and companions in youth, and shunned in adult life from fear of contagion.

The diagnosis depends on the history, and its differentiation from itch, pediculosis, and chronic eczema. The first is more or less localized in the extremities, and the characteristic furrows can be seen in the fingers or toes, if looked for with care. An examination of the underclothing, especially in the neighbourhood of the armholes, will show the presence of pediculi. The third may have a superficial resemblance, but itching is not a prominent feature. The history indicates a comparatively recent origin from a localized patch of weeping dermatitis, and its gradual extension.

Hebra regarded the condition as incurable, but as palliative treatment he recommended hot baths containing bran or starch at bedtime, the use of his soap (soft-soap 4; alcohol, 90 per cent., 2), the application of diachylon ointment (ung. diachyli).

Pruritus is often associated with urticaria, the wheals and other lesions being the result of friction.

Neurotic pruritus is described as consisting of discrete papules seen on the extensor surfaces. It may be acute or chronic, the former disappearing in a few weeks, the latter lasting for months or even years. It may follow mental shock.

Pruritus hiemalis occurs only in winter, and is especially noticeable at night and morning, being easier in the middle of the day. It is attributed to low temperature, a cold, dry wind and diminished humidity of the atmosphere.

Pruritus æstivalis is less common. Pruritus may occur during pregnancy or menstruation.

Pruritus senilis is not uncommon. It is thought to be due to atrophic changes in the skin. Once established, it appears to be incurable.

Pruritus vulvæ is often the first symptom of diabetes, and in that case requires to be treated generally by diet, and locally by extreme cleanliness, as the condition is caused by the local growth of yeast torulæ. The parts should be sponged every time urine is passed, a sponge wrung out of boracic lotion being kept in a bag suspended under the skirts. If there is any secondary eczema, a soothing ointment, such as ung. zinci, should be applied night and morning after the parts have been bathed and dried carefully. The condition may be associated with uterine fibroids or cancer, in children with thread-worms, or with highly acid urine.

Pruritus ani is often dependent on thread-worms in children, on hæmorrhoids or varicose veins around the anus; but the part becomes dry, scaly, and reddened from secondary eczema. Although no primary local lesion may be present, minute fissures in the muco-cutaneous folds have been detected in some cases. It is associated with gout and the menopause, with the use of coffee or sweet wines, or sweets of any kind.

Pruritus palmaris or plantaris is rare, but may be due to some article of diet, especially coffee, or to gout.

The general treatment of pruritus is a lacto-vegetarian diet, avoiding alcohol, sweets, and coffee. If any animal food is allowed, fish must be forbidden. The most suitable climate is one that is mild and not too dry, or near the sea. Sunlight is generally beneficial, but great variations of temperature should be avoided. The local application of X rays has proved of service in pruritus ani, but caution is needed not to expose the genitals to its action. Ointments or plasters of menthol are useful for local pruritus. Pruritus vulvæ has been treated by the application of pure carbolic acid or the actual cautery.

Pruritus ani may be relieved by drying with spirit, and the use of dusting-powder of French chalk and boracic acid, with the addition of a little menthol.

JAUNDICE.—When bile passes into the circulation, it stains the tissues yellow, being first noticeable in the conjunctivæ. The presence of bile in the blood is caused by absorption from the liver through the lymphatics in consequence of obstruction, either in the bile capillaries themselves, or in the larger bile ducts, or the opening of the common duct into the intestine. It is usual to speak of "obstructive" jaundice when the obstruction is of a coarse, mechanical nature, such as swelling of the lining membrane of the common duct, or the impaction of a calculus or a round-worm at its orifice, or by external pressure from a cancerous or other growth, or from a floating kidney; but jaundice occurs in many infectious or toxæmic conditions where the obstruction is probably in the bile capillaries. This is the cause of the jaundice that occurs in yellow fever, in epidemic or infectious jaundice, in malignant jaundice or icterus gravis, and in phosphorus-poisoning. In the very rare instances where jaundice has come on suddenly in consequence of violent emotion, it has been suggested that the obstruction may be due to spasm of the bile duct.

There is a condition which is called "family jaundice," where several near relatives show a trace of bile-staining in the conjunctivæ, and more or less in the skin. This is usually associated with some enlargement of the spleen. In many of these patients the general health seems to be unaffected, but in others there may be attacks of fever, with a greater amount of jaundice, and perhaps vomiting; while in these attacks the spleen grows larger. In the milder forms of this family disease there is no bile pigment in the urine, and the same absence of bile pigment is often noticed in the mild degrees of jaundice met with in influenza and other infectious conditions; but if the blood serum is examined, it is found to contain bile pigment. The probable explanation is that the tests for the detection of bile in the urine are not very delicate.

The commonest cause of jaundice is the extension of gastro-duodenal catarrh into the common duct. It is preceded and associated with the symptoms of gastritis, and usually subsides quickly as the stomach condition gets well.

Jaundice from the impaction of a calculus has usually been preceded by an attack of biliary colic, and the resulting jaundice may be very persistent. If the stone does not pass into the bowel, it is better to summon surgical assistance; but a dose of calomel and a hot seidlitz powder may often aid in its expulsion.

In obstructive jaundice from catarrh or gall-stone, the stools are pale, and may be as white as curd, from absence of bile pigment.

Malignant jaundice, or icterus gravis, is a form of jaundice that shows a special tendency to attack pregnant women. Beginning like a catarrhal jaundice after a few days' vomiting, constipation, malaise, and muscular pains supervene, and five or six days later, or may be longer, grave nervous symptoms make their appearance, such as restlessness, headache, delirium, convulsions, and coma, the jaundice being intense, the tongue dry and brown, the teeth covered with sordes, the pulse rapid, feeble, and irregular, the pupils dilated, the temperature variable, but often low. There may be hæmorrhages of various kinds, petechiæ, hæmatemesis, hæmaturia, epistaxis, metrorrhagia. The liver progressively diminishes in size; the urine may contain leucin and tyrosin (*q.v.*). Pregnant women generally abort. The disease is almost invariably fatal. It closely resembles in many respects poisoning by phosphorus, but in the latter there should be a history of phosphorus having been taken or vomited, and of the symptoms of irritant poisoning preceding the onset of the jaundice.

Jaundice occasionally occurs as an epidemic due to microbial infection, and there is a specially severe form

called Weil's disease (*q.v.*), of which a good many epidemics have been described in Germany among recruits. It is believed that infection is connected with bathing in infected water, as ducks have been known to suffer from a form of jaundice when this disease attacked recruits who bathed in the same river. The microbe has been identified as *Proteus vulgaris*.

Jaundice not uncommonly occurs in newly born infants. In many cases it is a transient and quite unimportant symptom, but in others it may be grave and rapidly fatal. These fatal cases may be due to congenital absence or obstruction of the bile ducts, or to septic inflammation starting from the umbilicus, and spreading into the liver, or from congenital syphilis, or very rarely from the presence of biliary calculi.

KELOID.—The condition called "keloid," or "cheloid," is in most instances a growth that takes place in old cicatrices, but sometimes after slight operations, the bites of insects, or acne pustules. It is doubtful if it ever starts *de novo*. On the whole, it is rare, but occurs in both sexes, more commonly in males, and at all ages, chiefly between the ages of thirty and fifty. It seems to be especially liable to attack negroes. The growth is flat, slightly raised, smooth, pinkish-white in colour, with bands radiating from the central patch. It tends to contract, causing puckering, but never forms scabs or desquamates. It itches, and may be tender, but is seldom the seat of pain. It leads to destruction of the hair follicles and cutaneous glands, with atrophy of the papillary body and thinning of the epidermis. Keloid persists throughout life, but does not become the seat of malignant growth, although at times it ulcerates and bleeds.

KERATITIS.—Inflammation of the cornea may be a local infective process, or the result of syphilis, usually

inherited. The cornea loses its transparency and polish, becomes hazy, or marked with yellow or grey specks or striæ; the details of the iris and the outline of the pupil are blurred. The infiltration may be completely or partially absorbed, but the process may be very slow. There are many types of infective keratitis, usually causing superficial ulceration. Interstitial keratitis is nearly always syphilitic. It occurs usually before puberty, is general and bilateral, but clears up under specific treatment. Other types of interstitial keratitis are seen in adults. The lesion is usually localized, and such causes are assigned as cold, rheumatism, malaria, or debility. Keratitis also occurs in leprosy, in blind eyes, and after cataract operations.

KERNIG'S SIGN.—If the patient is lying on his back, and one thigh is flexed on the abdomen, the knee being bent at a right angle, it is impossible to extend the knee-joint, especially in meningitis in children. The symptom is not pathognomonic, as it has been met with in meningeal hæmorrhage, typhoid fever, uræmia, and even in sciatica and lumbago, while it may be absent in the meningitis of adults.

KIDNEY, PAIN IN.—The region of the kidney may be the seat of pain from perinephritis, ending sooner or later in an abscess, which may burst or be opened. The presence of pyelitis, or inflammation of the mucous lining of the pelvis of the kidney, may cause pain, persisting for years. It may be a sequel to some acute infection, such as typhoid fever, or it may follow parturition. It is often cured by prolonged rest in bed or on a couch, and is not benefited by incision, which should be avoided, unless it is believed that there is a calculus, or the pain is so serious that it is decided to excise the kidney. There is always pus in the urine, but this is not accompanied by blood or crystals.

Calculus in the kidney may cause a fixed pain in the loin, or determine paroxysms of renal colic, with pain radiating along the course of the ureter, retraction of the testicle, and vomiting. The urine always contains blood, more or less pus, and crystals, which last may indicate the composition of the stone.

Movable kidney may give rise to pain in the loin or abdomen, and from time to time may cause paroxysms resembling renal colic—the so-called Dietl's crises, due to twisting of the hilus or pedicle of the kidney. The urine usually contains a little albumin and a few casts. Blood may be present from time to time.

Mobility of the kidney can be made out by palpation, especially if the patient is erect. A mobile kidney may be present without giving rise to any of these symptoms, and is often associated with neurasthenia, so that the knowledge of its existence works on the patient's mind. It is therefore not desirable to inform a patient, especially a woman, that she has a movable kidney when it is doing no harm. In a few cases it has dragged on the stomach, and caused pyloric obstruction. Wherever its results are sufficiently serious, even if only mental, nephropexy is a successful mode of treatment; but a well-fitting belt and pad should be tried in the first instance.

When pain is associated with a rounded, elastic tumour in the loin, the case is one of hydronephrosis or pyonephrosis. Intermittent hydronephrosis is shown by marked recurrent pain in the tumour, terminated by the passage of an unusual amount of urine and subsidence of the swelling. This result often follows on the patient taking to bed in consequence of the pain being increased by the pressure of corsets and clothing, but the relief is caused by the kidney, which is slightly movable, falling back into its recess, so that the bend in the ureter is straightened out, and permits the dammed-back urine to flow away.

Growths in the kidney cause pain, hæmaturia, and tumour, but the last is not always present, or may become apparent quite late in the course of the disease. Hæmaturia is constant, and there may be paroxysmal pain along the ureter, caused by the passage of clots of blood.

Neuralgia of the kidney or nephralgia is rare, but may occur and simulate calculus. One well-marked case was malarial in origin, and was cured by quinine, the patient narrowly escaping an operation.

Tuberculosis of the kidney is also accompanied by pain and hæmaturia, so that it has been mistaken for calculus. A prominent symptom is frequency of micturition, suggesting cystitis, although the bladder is not necessarily involved when this is present. It is very strongly urged by some surgeons that the affected kidney should be excised without delay as soon as the diagnosis is established by bacteriological examination of the urine and cystoscopic inspection of the bladder.

In the course of chronic heart disease, sudden pain in the region of the kidney, especially if attended by hæmaturia, points to infarction by blocking of a branch of the renal artery with a clot formed in the left auricle or ventricle of the heart. The clot has got detached, and has passed into the general circulation. In infective endocarditis the clot may be septic, and may cause not only infarction, but abscess in the kidney.

KNOCK-KNEE (Genu Valgum).—The common deformity knock-knee (genu valgum), with its nearly related conditions, bandy leg (genu varum) and bent leg (genu recurvatum), is generally the result of rickets, less commonly of osteitis of the lower end of the femur or of infantile paralysis, with impaired development of the limb, wasting of some muscles, and contraction of others. In rickets the relaxation of ligaments and muscles leads to osseous deformities (see Coxa Vara).

KOPLIK'S SPOTS.—In the early stages of measles, before the rash has shown itself on the skin, the mucous membrane of the cheeks, lips, and hard palate is the seat of an erythema, and upon these patches may be seen small, irregular, bluish-white specks, not larger than a pin's head, which disappear early, but may afford useful aid in the diagnosis of the disease at this stage.

KORSAKOFF'S PSYCHOSIS.—The mental complex of symptoms that goes by this name is characterized by—(1) Defective power of retaining passing events in the memory; (2) little power of recalling recent events; (3) confusion of time and space; and (4) a disposition to relate wholly imaginary stories as facts. It affects women more than men, and is especially associated with alcoholism, alcoholic neuritis, the neuritis of lead and arsenic, infectious diseases, and senility. It may be preceded by delirium tremens or by alcoholic stupor.

KUESSMAUL'S COMA.—See **Acidosis, Coma.**

KYPHOSIS (Hump-Back).—Antero-posterior curvature of the dorsal and cervical spine occurs in varying degrees, causing in minor cases "round shoulders," and in the worst a hump like that of Mr. Punch. These extreme cases are the result of rickets or Paget's disease (osteitis deformans, *q.v.*), while bronchitis or asthma in early life causes emphysema and a marked stoop. Slighter conditions result from certain occupations, such as that of a watchmaker; or from myopia, involving bending of the head and shoulders over the work or book; while the least degree is seen as the result of bad carriage in adolescents.

Drill and suitable exercises are capable of effecting great improvement in all early cases of this condition.

LARYNGEAL PARALYSIS (see **Aphonia**).—Laryngeal paralysis may be caused by affections of the nucleus of the glosso-pharyngeal nerve in bulbar paralysis, or of the

trunk of the nerves in meningitis, diphtheria, syphilis, tabes, or pressure on the recurrent branches, from aneurism, goitre, or growth. In all these conditions the paralysis is abductor. In hysteria, and occasionally from growth involving branches of the superior laryngeal nerve, the adductor muscles may be involved.

LARYNGISMUS STRIDULUS.—This condition, commonly known as "child-crowing," is due to a long-drawn inspiration through a glottis narrowed by spasm. It often comes on during sleep, and may be the forerunner of some acute infection, but rickety children, or those with a family predisposition, may, during the age of from six to twenty-four months, suffer from repeated attacks, induced by any shock, fright, or annoyance, waking from sleep, or swallowing or straining. It may come on when the child is quite quiet. The head is thrown back, the mouth opened, the chest fixed, the face, at first pale, becomes cyanosed, the momentary arrest of breathing being followed by a long inspiration and a loud crow. In slighter attacks there may be only a few laboured inspirations with crowing, while in the more severe there may be carpopedal spasm (see Tetany), or even general convulsions, and death may occur. There may be as many as twenty, thirty, or more attacks in a day, or they may recur each night.

The treatment should consist in careful revision of the diet, and a dose of calomel. A cold douche should be given two or three times a day. Sprinkling with cold water may be all that is necessary to cut short an attack.

LAVERAN'S BODIES.—This is the name commonly given to the malaria parasite discovered in 1880 by Laveran, a French army surgeon stationed in Algeria. It is now known that there are three varieties—the tertian parasite (*Hæmamœba vivax*), the quartan parasite (*H. malariæ*), and the æstivo-autumnal parasite (*H. præ-*

cox). These organisms reach the body by the puncture of Anopheles mosquitoes, which breed in stagnant water, especially in small puddles. If such collections of water cannot be removed by drainage and filling in, the larvæ may be destroyed, and the mosquito prevented from laying her eggs, by pouring small quantities of crude petroleum on the surface of the water.

LEONTIASIS OSSEA.—This is a disease of unknown origin, in which the symptoms occur in two forms. In both there is hyperostosis, or thickening of the bones of the skull; but in one the superior maxillary bones are the principal seats, and the overgrowth is in the form of bosses, which bulge into the orbit, the mouth, the nose, and its accessory sinuses. The nasal and frontal bones are less frequently the seats of the growth. The progress of the disease is slow, causing deformity, exophthalmos, epiphora, and obstruction to the cavities of the mouth and nose.

In the other form there is general, but uneven, thickening of the skull, causing deformity, especially of the frontal bones, neuralgia, paralysis, and sometimes blindness from pressure on nerve trunks.

Death may be the result of intracranial pressure or of intercurrent disease, but the cases last twenty or thirty years.

The only treatment that can be attempted is the relief of pressure or obstruction by a surgical operation to remove bosses or portions of the cranial wall.

LEPROSY.—Leprosy is a disease which is widely distributed throughout Asia, Africa, and the islands of the Pacific. There is a good deal in the Balkans and European Turkey, in Norway, and the Russian shores of the Baltic, and a little in Spain, Portugal, and the south of France. It is caused by a specific bacillus (*B. leprœ*). It is spread by contact and by arm-to-arm vaccination,

which, nowhere advisable, should be absolutely prohibited in all countries where leprosy is endemic.

The disease occurs in two forms—(1) the tubercular, (2) the maculo-anæsthetic—while some cases are mixed.

The early symptoms are occasional rigors, with pain, stiffness, drowsiness, vertigo, febrile attacks, sweating, and epistaxis, followed by an erythematous rash, on the appearance of which the general symptoms abate, and the patient feels quite well. The rash, which on a white skin is reddish-brown in colour, disappearing on pressure, fades away, leaving only slight pigmentation. But soon there is a second rash, which persists, the skin thickens, tubercles form on the face and extensor surfaces of the extremities. These are in the true skin, and do not at first involve the epidermis. They may disappear, but others form. The nose and lips thicken, the face assumes the leonine appearance (facies leonina), and the tubercles soften, discharge and heal, if properly treated, leaving white scars. The skin is dry, and sensation is lost, so that injuries and mutilation of the fingers and toes may occur. The mouth, pharynx, larynx and eyes may be involved.

Both sexes seem equally liable. Recovery is rare, but not impossible. As a rule the disease is fatal in from eight to twelve years.

The maculo-anæsthetic form is milder. Its symptoms are erythema, pigmentation followed by loss of pigment, neuralgia followed by anæsthesia, an eruption of bullæ on the palms of the hands and soles of the feet, hyperæsthesia, paralysis, claw-hand (*q.v.*), perforating ulcer, epiphora (*q.v.*), ectropion (*q.v.*), ulceration of the cornea, eversion of the lips, salivation, dyspepsia, and nephritis. The disease lasts eighteen or nineteen years before the fatal termination.

So far, no treatment has been found curative, but cases are improved with suitable care, by which sores may be

healed and mutilation prevented. Improved hygiene and diet have effected much; fresh air and frequent baths are beneficial. The external use of a 10 per cent. ointment of pyrogallic acid and lanoline has been praised in the treatment of early maculo-anæsthetic leprosy, while injections of nastin or benzoyl-nastin is said to effect the destruction of the bacillus in the tissues. Of drugs administered internally, the best results have been recorded from ½ drachm doses of chaulmoogra oil given in capsules, which is also applied externally, and from salicylate of soda. Notification and isolation are effective measures that are imperatively called for to check the spread of this most terrible of diseases.

LEUCIN AND TYROSIN.—These two amino-acids, being products of proteid decomposition, are occasionally met with in the urine, tyrosin being found as a crystalline deposit, leucin more rarely. The former under the microscope appears as fine needles, the latter as balls. Usually they have to be sought for by precipitating the urine with basic acetate of lead, removing the lead by a stream of sulphuretted hydrogen, filtering again, and evaporating the filtrate to the consistence of syrup, when the leucin and tyrosin crystallize out. These substances are found in the urine of acute yellow atrophy of the liver, less certainly in phosphorus-poisoning, variola, and pernicious anæmia.

LEUCOCYTOSIS.—Blood-counting is a regular part of modern clinical investigation. This is done by means of a special instrument—the hæmocytometer—by which are estimated the numbers of red and white corpuscles respectively in a cubic millimetre of blood. The normal number of white corpuscles (leucocytes) ranges between 2,000 and 5,000. A larger number is called "leucocytosis," and a smaller number "leucopenia." Strictly speaking, the leucocytes are those white cells which are

derived from the bone-marrow, and possess irregular nuclei and many granules, which are described as neutrophile, eosinophile, or basophile granules, according to their reactions to staining fluids. The other white cells, or lymphocytes, are derived from lymphatic tissue, and have a round nucleus, no granules, and basophile cytoplasm. Roughly speaking, the leucocytes are to the lymphocytes in the proportion of 3 to 1. Leucocytosis occurs normally in the newly born infant, and at all ages during digestion. It is met with as a reaction of the system to acute infections, but in all these conditions the number is moderate, usually not exceeding 20,000 or 30,000, but in whooping-cough it may be much higher. Very high leucocyte counts are characteristic of leukhæmia, when 200,000 or more may be present. In myelocytic leukhæmia, the leucocytes and lymphocytes retain their normal proportions, but in lymphatic leukhæmia these are reversed, and lymphocytes predominate.

Leukopenia occurs in starvation and malnutrition, in asthenic cases of infection, in malaria, Malta fever, measles, typhoid, influenza, kala-azar, and some blood diseases, pernicious anæmia, splenic anæmia, chlorosis, and profound symptomatic anæmias.

LEUCODERMA (Vitiligo) (see **Pigmentation**).—In this condition, the cause of which is unknown, rounded white patches, with deeply pigmented margins, appear on the skin, spread, coalesce, and then lose their pigment, so that the body may become uniformly white or mottled, the latter being commonly seen in dark-skinned races. It is common in the tropics, where it is more obvious from the absence of clothing and the contrast on dark skins, but may not be as rare here as the want of evidence suggests. It is probably related to malaria, possibly to syphilis, but in tropical countries it is popularly regarded as a form of leprosy.

LEUCOPENIA (see **Leucocytosis**).—Relative diminution of the number of the white cells of the blood, seen, for example, in typhoid fever.

LEUCORRHŒA.—A mucous or muco-purulent discharge from the vagina, which occurs in pregnancy, in anæmia, and debility from any cause, and in inflammatory or other disease of the uterus and vagina.

LEUKHÆMIA (see **Leucocytosis**).—Variation in the number of white cells in the blood has been discussed under Leucocytosis, but leukhæmia is a definite disease of unknown origin, in which, from some derangement of the blood-forming organs, the absolute numbers and relative proportions of the blood cells are profoundly altered, and a train of symptoms produced which inevitably ends fatally. Although the blood-changes vary, so as to justify the description of at least two forms, the symptoms in the main do not differ. The onset of the disease is insidious, showing itself by progressive anæmia, headache, weakness, faintness, vertigo, and dyspnœa, with from time to time hæmorrhages from the nose or gums and ecchymoses. The pulse is soft, increased in rate; hæmic murmurs are audible over the heart and vessels of the neck; gastro-intestinal disturbance and diarrhœa are common. The urine usually deposits uric acid, sometimes blood or leucocytes, and a trace of albumin. Complications, such as bronchitis, pleural effusion, œdema of the lung, pneumonia, ascites, jaundice, retinal hæmorrhages, or hæmorrhage into joints, muscles, serous cavities, or brain, may occur.

Enlargement of the liver and spleen is the marked feature in one type, and of lymphatic glands in the other, but these are present to some extent in both. In the splenic type the increase of leucocytes is mainly of the kind found in the bone-marrow (myelocytes) and of the polymorpho-nuclears, but in the other type it is of large

and small lymph cells derived from the lymphatic glands; but there are also intermediate types, in which both kinds of leucocytes are increased, or in which at one time leucocytes and at another lymphocytes prevail.

Finally, the white cells may temporarily diminish, so as not to exceed the normal number.

The enlargement of the spleen may be very great, so as to cause a sensation of weight and dragging in the abdomen, but the enlargement of the lymphatic glands is moderate and painless.

An acute form of the lymphatic type is seen occasionally. It is marked by fever, hæmorrhages, anæmia, and prostration. Death occurs in a few days or weeks, sometimes so quickly that the glands and spleen have not had time to enlarge. The blood-changes may make their appearance late.

The number of white cells in a cubic millimetre of leukhæmic blood averages 400,000, but may reach 1,000,000, and the red cells are reduced to about 3,000,000; but nucleated forms and blood-plates are usually present.

No treatment has proved ultimately successful, but under the use of X rays the splenic and glandular swellings have subsided, and the blood may become normal; yet this method is dangerous in acute cases, or where there are any signs of nephritis. It is most suitable for early cases. Under the administration of benzene the leucocytes have disappeared, but this remedy should be used cautiously, as its destructive effects may go too far. Arsenic is the drug usually employed.

Leukanæmia is the name given to a disease which partakes of the features of pernicious anæmia (see Anæmia) and leukhæmia, the red cells falling as low as 250,000; while the leucocytes, although relatively in excess, may be only 10,000 (their normal proportion would be about 600).

Pseudo-Leukhæmia is a synonym for lymphadenoma (*q.v.*), or Hodgkin's disease, in which the blood cells are unaltered, or only exhibit the changes of moderate anæmia.

LICE.—The vermin (Pediculus) which infests the unwashed gives rise to the condition called "phthiriasis," or "lousiness." Three varieties are described, according to their habitat—*Pediculus capitis*, *P. pubis*, and *P. vestimentorum*. They cause irritation, which results in scratching, and the diagnosis is made by seeing the minute petechiæ or effusions of blood in the skin, the scratches or scoriæ made by the patient's nails, and finally by discovering the animals in the situation indicated. Before openly expressing an opinion, it is desirable to demonstrate the animal, or the possibility may be indignantly denied, and the patient go off in a huff. In examining the clothes, the under-shirt or vest should be carefully turned inside out, and the arm-holes and sleeves inspected closely. Pediculi in the head sometimes exist in incredible and disgusting numbers in the hair-knots of girls, which cannot have been combed for weeks. They usually complain of soreness and lumps in the neck, where the lymphatic glands are swollen, and there is some superficial dermatitis from scratching or rubbing.

Lice breed rapidly where clothing cannot be changed or proper cleanliness preserved, so that soldiers and even officers on campaign get infected. These pests were common when the custom of bathing was unknown, and the fashion of shaving the head and wearing wigs may have owed its origin to the protection it afforded. Probably household slaves were kept shaved for the same reason.

Children readily harbour lice if they are not washed, and the percentage of those attending elementary schools who are in this condition is disgracefully large; but the public authorities conceal the figures from a mistaken

notion of avoiding offence. The heads of children admitted to hospital usually contain nits, if not mature lice. Nits are the eggs of lice, which adhere to the hair by a strong cement, and cannot be removed by washing with soap and water or easily by combing, but oil of sassafras removes them readily, and is an agreeable as well as efficient and cheap remedy. Cleanliness of clothes and person is a perfect protection against lice, and those whose work brings them into contact with verminous persons need have no fear. The usual remedy for *P. pubis* is a mercurial ointment (ung. hydrarg. oxidi rubri).

The condition called **Plica Polonica** was at one time thought to be a specific disease, but is now recognized to be simply due to matting of the hair with pus and filth, in consequence of chronic pediculosis capitis.

The purple patches on the skin seen in typhoid fever and other conditions, which have been called **Tâches Bleuâtres** (*q.v.*), are now recognized to be the result of pediculosis.

LIGHTNING, DEATH FROM.—There are absolutely no constant and characteristic symptoms of death from lightning. The body may show no signs of injury, but in other cases there may be burns, ecchymoses, or fractures, or an arborescent erythematous marking, popularly supposed to be a sort of photograph of a tree in the neighbourhood of the accident.

Where death does not occur, the various nervous symptoms—paralysis and the like—pass off, and recovery takes place.

LIGHTNING PAINS.—The darting neuralgic pains in the legs which occur as an early symptom of tabes dorsalis (locomotor ataxy).

LIP REFLEX.—This reflex is pouting of the lips on tapping near the angle of the mouth, produced in young

infants, especially during sleep. It is normal in the newly born, tending to disappear by the third year, but in rickety children, who are predisposed to convulsions, it persists, and is associated with other evidences of nervous irritability.

LIPÆMIA.—After fractures, especially of long bones, fat may pass into the veins, and be found post mortem forming embolisms in the lungs. These are said to cause dyspnœa, but they may be found abundantly in the bodies of persons who have presented no special symptoms during life.

In diabetes the blood occasionally contains an excess of fat, which post mortem may rise to the surface, and form a milk-like layer. Under the microscope it is seen to be in the form of a fine emulsion. The post-mortem clots in the capillaries contain some of this fat, and stain black with osmic acid; but there is no reason to believe that embolisms occurred during life, or that pulmonary symptoms were produced by the lipæmia.

LIPOMATA. — These are connective-tissue tumours composed of fat, exactly like the subcutaneous fat. They are soft, rarely painful, and, except as a cause of deformity, or when they grow within the cavity of the cranium, or of the spinal canal, or of the intestine, they do no harm.

LIPURIA (see **Chyluria**).—Oily drops floating on the surface of the urine are generally derived from a catheter which has been used to draw off the urine. Fat may be excreted by the kidney as a rare occurrence in subacute pancreatitis, or possibly from degeneration of the kidney, but most commonly in chyluria (*q.v.*). It is conceivable that it might occur in diabetic lipæmia, but while this is not very uncommon, I have never seen lipuria associated with it. Fatty degeneration of renal cells and casts is common.

LITHURIA.—Lithic or uric acid is a normal constituent of the urine, combined with such bases as sodium and potassium, to a smaller extent with calcium and magnesium. These salts are soluble, especially at the temperature of the body; but when in concentrated solution, may precipitate as the urine cools. Lithates or urates, when precipitated, make the urine turbid or muddy. They vary in tint from pale yellow to brick red, their colour being due to their carrying down with them urinary pigments, chiefly urochrome and uro-erythrine. If the urine is pale, the urates will be equally devoid of colour; but in functional and organic diseases of the liver, and in acute rheumatism, when the urinary pigments are in excess, the precipitated urates are brick red.

Urates are thrown down in the urine whenever this secretion is concentrated, as it may be in health after violent exercise, when much water is given off by the skin and lungs, or in consequence of diarrhœa or fever, or from deficient secretion of urinary water in disease of the heart, lungs, liver, or kidneys, or in acute gout. The urates so deposited are usually amorphous.

When ammonia is formed by the decomposition of urea, urate of ammonia crystals may be formed, as the so-called "hedgehog crystals"—rounded or ovoid masses, with spines or spicules projecting from them. Urate of soda in the urine of children sometimes crystallizes in spheres or dumb-bells.

Where the urine is highly acid from the presence of excess by concentration of acid phosphate of soda, or after standing as the result of acid fermentation, the combination with alkaline bases is broken up, and uric acid crystals are formed. These take various shapes—lozenges, rods, rosettes—and are usually pigmented; but when deposited from pale urine (of children especially), they may be colourless. Large uric acid crystals form a deposit which is aptly compared to cayenne pepper.

As a rule these deposits occur only after the urine has been passed, but when it is highly acid, uric acid may be precipitated in the pelvis of the kidney and form a *renal* calculus, giving rise to an attack of renal colic, if of sufficient size to cause pain in passing into the ureter; but a stone may remain in the pelvis, and grow by accretion or by the deposit of phosphates upon it, so as to form a mass too large to pass, and may mould itself into a cast of the pelvis and calices of the kidney; or a small stone may pass painlessly into the bladder, where it may rest, and give rise to the symptoms of stone in the bladder, or finally be expelled with the urine through the urethra.

As uric acid is soluble in alkaline urine, its precipitation may be prevented or stopped; or the stone, when formed, may be dissolved by the administration of alkaline salts, such as citrate or bicarbonate of sodium or potassium, or of such solvents as hexamine or its congeners.

LIVER PAIN.—The liver may be the seat of pain from inflammation of its peritoneal investment, of its substance, or of the gall-bladder. The first is seen in association with cirrhosis of the liver, generally in alcoholic subjects; the second rarely, except in persons who have lived in the tropics, and especially in those who have suffered from dysentery; the third may occur after typhoid fever, but is generally set up by gall-stones. It may be attended by jaundice. A tender spot in the position of the gall-bladder can be detected. Pain may be caused by congestion from alcoholism, malarial fever, or heart disease. In all these conditions the liver is enlarged and tender, but its outline is normal, and its surface is smooth. Lastly, pain may be caused by growths, by cancer, or hydatids. In cancer the liver is enlarged and tender, jaundice is usual sooner or later.

The masses of cancer can generally be felt. Ascitic dropsy and considerable loss of flesh are rarely absent. The clinical symptoms of hydatids are enlargement of the liver, without marked constitutional symptoms; the tumour may be rounded and fluctuating, or irregular; a thrill can sometimes be felt; on puncturing, water-like fluid is withdrawn, in which, under the microscope, hooklets can be found.

LIVIDITY (see **Cyanosis**).—This means the colour of lead, but is employed to express the blue or purple colour of cyanosis (*q.v.*). Cadaveric lividity is the purple colour seen in the dependent parts of a corpse from the gravitation of the blood, which is most marked where death has occurred from fever, sepsis, or asphyxia, and least in deaths from loss of blood or anæmia. The pigmentation of the skin from chronic silver-poisoning (argyria, see Pigmentation) may be truly described as livid, for the patient looks as if his face had been black-leaded.

LOCKJAW (see **Tetanus**).—Trismus, or spasmodic lockjaw, is dealt with elsewhere, but the jaws may be fixed by inflammation, rheumatoid arthritis, or growths about the temporo-maxillary joint or the masseter muscle.

LONGEVITY.—The duration of human life is accurately enough fixed by the threescore years and ten of the Psalmist, but it appears to be less in tropical climates. Greater length of life than this is exceptional; but if it may be assigned to any race, it should be to the Slavs—a curious fact, for if they use sour milk, they abuse alcohol! It is undoubtedly a family peculiarity, no one being likely to attain to extreme old age who has not inherited a constitutional longevity. Women, on the whole, live longer than men.

LORDOSIS.—This is an exaggeration of the normal lumbar curve, seen where the abdomen is distended by

pregnancy, ascites, or tumour, in pseudo-hypertrophic paralysis, hip-joint disease, and spondylolisthesis (*q.v.*).

LUMBAGO.—Acute lumbago may occur without premonition when the patient thinks himself in the best of health, usually in the course of some sudden stooping movement, such as in picking up an object from the ground. The pain is a very severe stabbing pang in one or other lumbar region, so violent at times as to deprive the sufferer of all power of movement. The slightest effort renews the agony, and the patient must be carried to bed and undressed with as little disturbance as possible. A third of a grain of morphia should be administered hypodermically, and a broad bandage or belt firmly applied, so as to keep the lumbar muscles at rest. By these means the return of the spasm is prevented, and when the patient with this support is able to get up, he should be encouraged to do so, as recovery is promoted by exercise.

In subacute cases the pain is much less severe, and never incapacitating, while in the more chronic form, which may last for weeks, the condition amounts to little more than a certain amount of pain and stiffness in the lumbar muscles; but in these milder conditions the patient is always in dread of an acute attack.

The pain is not confined to the lumbar region (the erector spinæ), but may affect the dorsal muscles, the trapezius and latissimus dorsi, the serrati, the longissimus and spinalis dorsi, and pains may shoot along the trunks of nerves, especially the sciatic nerves and their branches.

The prophylactic treatment of this troublesome affection is abstinence from the use of beer and wine, correction of any tendency to constipation, slapping the lumbar muscles, and rubbing the skin over them with a horsehair glove daily before the bath; the use of light woollen

underclothing; and in cold, damp weather a thin-ribbed "slip-on" Jaeger belt should be worn.

When the pain begins to be felt, stop taking a cold bath, or even omit the bath, either hot or cold, for a day or two, sleep rolled up in a thin blanket put between the sheets, and wear a well-fitting Tyrol belt, such as is sold at the Jaeger shops. This is made of strong brown inelastic felt, is lined with white Saxony flannel, and fastens with a broad band of webbing and a buckle. It should be cast off when the attack or threatening of an attack has passed away.

If the bowels are not well open, a laxative should be given, and a 5-grain capsule of phenalgin (phospho-ammonio-phenyl-acetamide) taken two or three times daily for two or three days.

The painful muscles may be slapped, massaged, and rubbed with ung. methyl. salicyl. co. (B.P.C.). The application of dry heat by a hot-water bottle, or ironing with a flat-iron, the skin being protected by two or three layers of brown paper, sometimes acts like a charm.

Acetyl-salicylic acid (aspirin), 10 grains, taken at bedtime, may be continued until all muscular pain has disappeared.

During the acute attack, and until exercise can be taken, the diet should consist of cereal foods, bread and butter, light cakes, fruit, vegetables, eggs, and white fish, with tea, coffee, or cocoa, and mineral waters.

LUPUS.—**Lupus vulgaris** or **lupus exedens** is tuberlosis of the skin. It is prone to attack the face, leading to destruction of the nose. More rarely it affects the throat, and may destroy the epiglottis. The affected skin is red, rough, and the edges show apple-jelly-like papules where the active process is going on. It ulcerates slightly, but heals quickly, and only destroys where it

can attack both surfaces, as the alæ of the nose, or the epiglottis. It spreads slowly, but eventually heals, leaving a good deal of disfigurement and scarring. At one time it seemed to be a favourable case for treatment by Koch's tuberculin, as great improvement followed the use of the injections; but nothing demonstrated more completely the failure of that much-vaunted remedy than the eventual relapse of the cases in which it was tried. It is greatly benefited, and often cured, by Finsen's light treatment.

Lupus erythematosus was formerly supposed to be nearly allied, but is now known to be non-tuberculous. It is an erythema combined with a chronic inflammation of the sebaceous glands. It affects the nose, lips, ears, fingers, and toes. The parts are red or purple, thickened, rough, and pitted by depressions, which are the openings of sebaceous glands. It is very chronic in its course, and intractable. A case was cured by a 10 per cent. ointment of chrysarobia. Arsenic should be given internally.

LYMPHADENITIS. — Inflammatory swelling of the lymphatic glands may be acute or chronic, and occurs commonly in the neighbourhood of inflammatory processes. The glands enlarge in many acute and chronic diseases—in German measles, in syphilis, and in tuberculosis. In the last condition they are prone to caseate and suppurate, forming sinuses, which do not heal, and excision is the only satisfactory treatment for them. In the other conditions the swelling subsides on the disappearance of the initial mischief.

LYMPHADENOMA (Hodgkin's Disease).—This is a chronic progressive hyperplasia of lymphatic glands and lymphatic tissue, forming large tumours. It is accompanied by recurring attacks of pyrexia, increasing anæmia, debility, and cachexia, terminating fatally after

a course of several years. The glandular tumours are generally hard, painless, and elastic, but sometimes soft; they are lobulated, non-adherent to the skin, often symmetrical, occupying both axillæ and both groins; but the internal glands sooner or later share in the process, and may cause pressure on the bronchi, the bloodvessels, or the bile ducts. Excision of the first growth is now usually performed, but does not appear to prevent the subsequent development of the disease, and there is no specific remedy, although arsenic is usually given.

LYMPHANGIOMA (see **Elephantiasis**).—Dilatation of the lymphatic vessels may result from obstruction or wounds of them. The large growths of elephantiasis (*q.v.*) are caused by blocking of the vessels by the parent Filaria. Smaller growths cause lymphatic nævus, varix, or ectasis, forming vesicles, varicosities, and œdema of the skin. These growths may be destroyed by electrolysis, but excision is necessary in some cases. One form of enlargement of the tongue, **macroglossa,** is due to this cause.

LYMPHATISM (Status Lymphaticus).—This is a constitutional condition, seen as a rule in pale, often rickety, children, disposed to laryngismus stridulus (*q.v.*), adenoids, and enlarged tonsils. There is hyperplasia of lymphatic tissue, with hypoplasia of the heart and arterial system. Such children are liable to die suddenly from heart failure while bathing or under general anæsthesia, or in convalescence after acute diseases, especially diphtheria.

Adults with this constitution are undersized and infantile (see Infantilism).

Thymus-Tod of German writers refers to the rapid death of adolescents after a few hours' illness, with convulsions, vomiting, and spasm of the glottis. It is attributed to pressure from an enlarged thymus gland.

LYMPHOCYTHÆMIA.—See **Leukhæmia.**

LYMPHOMA.—See **Lymphadenoma.**

LYSIS.—This means a gradual termination of a disease without any marked feature or event, and is especially applied to a gradual fall of temperature, as distinguished from the sudden fall that occurs in a **crisis** (*q.v.*).

McBURNEY'S POINT.—An American surgeon, McBurney, has drawn attention to the significance of pain on pressure at a point midway between the umbilicus and the anterior superior spine of the ilium as a sign of appendicitis, and its value is generally admitted.

MACROGLOSSA.—See **Lymphangioma.**

MAGNAN'S SIGN.—In chronic cocaine-poisoning, or in those addicted to the vice of cocainism, Magnan draws attention to the diagnostic value of the hallucination that there are grains of sand, crystals, worms, or microbes, under the skin.

MALARIA (see **Laveran's Bodies**).—Malarial or marsh fever exists more or less as a pandemic throughout the tropical and temperate regions, with the exception of portions which by their altitude possess an arctic or subarctic climate. The disease prevailed extensively in this country up to a couple of hundred years ago, but, owing to better surface draining, it now exists only in some parts of the Fen country.

Three types are recognized—(1) Quartan, (2) benign tertian, and (3) malignant or remittent tertian. These different types depend upon infection by specific forms of hæmamœba (see Laveran's bodies), the attack being caused by the growth of these organisms in the blood. At the beginning of the attack some of the red corpuscles of the patient's blood contain one or sometimes two pale amœbæ possessing distinct pseudopodia. These amœbæ

enlarge, develop nuclei and nucleoli, ultimately forming the pigmented " rosette " bodies, which by the rupture of the blood-corpuscles discharge numerous spores into the circulation. These spores penetrate other red corpuscles, and recommence the same process. This is the asexual cycle, which tends to cure, if not reinforced by fresh infection. Infection takes place by the agency of mosquitoes (anopheles). The anopheles sucks the blood of a man whose circulation contains the " gametes " of the amœba, and in the middle intestine of this insect the gametes develop into spherical bodies, some hyaline possessing flagella, others granular but non-flagellated. The flagella detach themselves, penetrate and fertilize the granular spheres, that become transformed into " spear-head " bodies, which are introduced into the blood of another man, and pierce the red corpuscles, becoming the sporulating amœbæ.

The incubation period varies, averaging thirteen days in quartan, ten days in tertian, and three days in malignant tertian.

The periodicity of the attacks is a striking feature. In quartan there is one fever day and two free days, in tertian only one free day, while in malignant tertian the fever assumes a remittent type; but the regularity of quartan and tertian fever may be obscured by the presence of more than one set of parasites, so that in double quartan there are two days' fever and only one free day, while in triple quartan the fever becomes quotidian.

The attacks usually occur between midnight and noon.

The premonitory symptoms are languor, vague pains, chilliness, yawning, stretching, and headache. The face becomes blue and pinched, the ends of the fingers shrivelled, the teeth begin to chatter, the patient shivers, his temperature rises to 104° or 105°, and he passes copious pale urine. The rigor, which lasts about an hour or an hour and a half, passes gradually into the hot

stage, with bounding pulse and throbbing head. The hot stage lasts about two hours, and is succeeded by profuse sweating, after which the patient may get up, be able to take his food, and resume his work. The urine passed is usually loaded with urates, but in uncomplicated cases is not otherwise abnormal (see Blackwater Fever).

Such attacks may recur for months, or even years, without seriously affecting the general health.

Malignant or remittent malarial fever is characterized by an ill-marked cold stage, but the hot stage lasts twenty or thirty hours, or may continue with slight remissions for a week or more. The subjects of it generally get several comparatively mild attacks, which should be accepted as a warning. If not, a severe attack will follow, in which the patient becomes comatose, with vomiting of bile or blood and hyperpyrexia, too often terminating in death. In the variety called "bilious remittent" there is jaundice, with bile in the urine; and in so-called "typhoid remittent" the tongue is dry, there is coma vigil, with muttering delirium and feeble pulse. Names have been given in accordance with prominent symptoms—*e.g.*, cerebral, comatose, hyperpyrexial, algide, gastric, choleraic, syncopal, and so forth.

There may be serious nervous sequelæ, delusions, mania, or melancholia.

The **Malarial Cachexia** is especially apt to show itself in European children who have remained in a malarial climate after they have been infected. They become anæmic, with yellow or dirty skins and sclerotics; they are wasted, with protruding abdomens from splenic enlargement; and they suffer from gastro-intestinal catarrh. Adults show anæmia, sallow complexion, muddy conjunctivæ, hæmorrhage, dyspnœa, œdema of the legs and ankles, incapacity for work, weakness, languor, and enlarged spleen. The last is grave, from the danger of

rupture from a fall or blow, when death from hæmorrhage is certain in the absence of the promptest surgical assistance.

The prognosis of ordinary malarial attacks is good as to life, and in the absence of cachexia their recurrence seems to be well borne for long periods. The supervention of splenic enlargement, with its attendant symptoms of cachexia, or the occurrence of remittent fever, should be taken as a warning to seek a change of climate.

The *prophylactic* treatment of malaria consists chiefly in abolishing the mosquito by surface drainage and filling up depressions near the house in which water can lodge, in protection against their assaults by wire gauze shutters to doors and windows, or by the use of mosquito rooms and mosquito curtains. The prophylactic administration of quinine is only practicable for those who are temporarily visiting a malarious district, when it is a wise precaution to take 5 grains daily.

In an ordinary attack of ague the most comfortable thing to give the patient during the cold stage is hot drink, generally tea. After the attack he should take 10 grains of quinine daily for a few weeks. In remittent fever quinine should be given with some strong stimulant, and Warburg's tincture, which is made up with proof spirit, gained its reputation in this form of fever.

In malarial cachexia arsenic is the most valuable remedy, either in the form of Fowler's solution (5 minims) or in pills of arsenious acid ($\frac{1}{25}$ grain), three times a day.

MALIGNANT (Malignancy).—This adjective is used to express the grave or fatal character of any disease. It has much the same value as "pernicious," which is used in the same way. A fever may be "malignant" or "pernicious"; fatal anæmia is called "pernicious," but not "malignant"; while growths are always "malignant," and never "pernicious." A **malignant growth** is

one that tends to grow indefinitely, to invade neighbouring parts, to give rise to secondary growths, and to recur if removed surgically. **Malignant pustule** is a synonym for anthrax. **Malignant endocarditis** is another name for the infective form, which is also called "ulcerative," "vegetative," and "septic." **Malignant fever** is generally applied to the virulent type of malarial fever.

Malignancy is the malignant state or condition of a disease.

MALIGNANT PUSTULE (Anthrax, Splenic Fever, Woolsorter's Disease).—This is an acute infection from cattle met with in those who have to do with animals, or are obliged to handle wool, hair, hides, or bristles. It is caused by the *Bacillus anthracis*, a jointed growth, with concave ends to the rods, and a capsule. It penetrates abrasions or wounds, or is swallowed or inhaled (rarely). There are two forms—(1) external, (2) internal. The symptoms of external anthrax are the formation of one or more pustules, which form on the skin two or three days after infection. These pustules contain a bloody fluid and burst, leaving a dark scab surrounded by miliary vesicles. After one or two days the base becomes brawny, the centre sloughs, œdema spreads, red streaks of inflamed lymphatics appear, and the glands in the neighbourhood swell. The constitutional symptoms may be severe—fever, sweating, enlarged spleen, delirium, coma, collapse, and death. **Anthrax œdema** may occur without a pustule, and may become gangrenous.

Internal Anthrax has indefinite symptoms, headache, loss of appetite, pains in the limbs, lassitude, followed by vomiting and diarrhœa, with melæna and other hæmorrhages. Pain in the chest, cough, dyspnœa, cyanosis, and restlessness, point to the lungs being attacked. The temperature rises to 102° or 103°, with splenic enlargement, delirium, convulsions, coma and death. The

duration of this form is from one to five days, being very fatal; but in the external form the constitutional symptoms may be slight, and recovery result.

Treatment.—Pasteur's preventive inoculation has been successful with cattle. To prevent the spread of the disease, infected animals should be killed and their bodies cremated, and the pasture should be closed for a year. In man early excision of the pustule or œdematous area is recommended, or the use of the actual cautery and injection of a solution of iodine or carbolic acid into the tissues. Sclavo's serum, if used early, appears to be successful. Stimulants and good food should be given. In the *internal* form Sclavo's serum affords the only chance.

MALINGERING.—The simulation of illness, either by wilful pretence or by the exaggeration of slight but genuine disease, is called "malingering," and an acquaintance with its main features and extent is becoming of great importance, owing to the large number of persons who are now entitled to sick payments under the National Insurance and Workmen's Compensation Acts, so that a subject which used to be almost a specialty of medical officers in the army, navy and prison services, is now of interest to almost every practitioner.

The main features of malingering are the presence of a motive and the inconsistency and exaggeration of the symptoms. Insured persons simulate or exaggerate to gain money or sick pay; soldiers and sailors to escape duty; prisoners to gain release or reduced punishment, or to obtain the comparative comfort of life in hospital; beggars and tramps to avoid being made to work; and children to escape punishment, or to be revenged upon servants and teachers.

The ingenuity exhibited in the simulation of disease is considerable in the case of factitious wounds, injuries, and diseases of the skin, often involving the use of

caustics, acids, and dyes. Erythema is produced by rubbing or stains, bullæ by cantharides or burning; but the lesions are generally found to be on the left arm or left thigh, where they can be produced by the right hand. Contractures and stiff joints are simulated, but can be relaxed under chloroform; while by the same means "phantom" tumours may be dispelled. Alleged fractures do not resist examination by radiography. Œdema may be produced by ligatures, palpitation and sweating by muscular exertion, while syncope and angina may be feigned. Tobacco and digitalis are used to slow the pulse, and the thermometer is made to rise by friction. Hæmoptysis is produced by lacerating the gums, but the blood is never aerated; vomiting can be produced voluntarily; deafness (usually of one ear) and blindness (also of one eye) can be feigned. Epileptic fits can be simulated so well as to deceive those who do not investigate them carefully. The detection of simulated paralysis is discussed under Hemiplegia.

While it is the duty of medical officers in the public service to detect simulation, and to expose those who practise it, there are great difficulties in the way of the private or panel practitioner who attempts to play the part of a detective. His interest is clearly to accept his patient's statements in good faith; to do otherwise exposes him to so much risk of professional injury that it is unfair to place him in this position without affording him some security that he will not suffer by resisting attempts to defraud. According to the German reports of the progress of their Insurance Law, the amount of sickness has risen out of all proportion, and doctors, judges, and committees agree to look with sympathetic eyes on all claims for sick pay. Even the central authorities approve of this attitude. That it is rapidly having a demoralizing effect upon all concerned has been admitted, and the ultimate result is not a pleasant one to

contemplate. It seems the inevitable result of the system, and the only attempt made in this country to check the growth of the evil has been by the appointment in a few places of medical referees, to whom doubtful cases can be sent; but this can only operate in a small proportion of cases, where the duration of the alleged incapacity affords ground for seeking a second opinion, and none in the innumerable instances of the exaggeration of slight ailments or of the pretext of sickness when a few days' holiday is desired.

MAMMARY PAIN.—Pain in the mamma occurs sometimes in infancy soon after birth.

In the female it occurs commonly during menstruation and in the early months of pregnancy, when the breasts begin to swell.

During lactation pain may be caused by the infant dragging on the nipple, or by cracks or fissures of the nipple. Such cracks may permit of the introduction of pyogenic organisms, with consequent inflammation and abscess. This trouble is apt to occur when the nipple is retracted or badly formed, so that the infant has difficulty in sucking. Where this happens the child should be weaned, the milk drawn off by a pump, and glycerine and belladonna extract smeared over the breast, which may be supported by a pad of Gamgee tissue and a bandage. If there is much pain, six or eight leeches should be applied and a fomentation put on. When pus has formed, this should be promptly let out by incision and a drainage-tube inserted. The bowels should be moved by a dose of senna or castor oil, and the diet should be simple but abundant: plenty of milk, eggs, bread and butter, puddings, fruit and vegetables.

In elderly women the gland may become enlarged, hard, and painful from chronic inflammation, which closely resembles cancer, or may become cancerous.

Simple fibro-adenoma and cysts form in the gland, but are not as a rule painful.

Cancer causes a darting pain; the growth is usually of stony hardness, the nipple becomes retracted, and the remainder of the gland atrophies.

In these last three conditions surgical assistance should be promptly invoked, and partial or total removal of the gland sanctioned.

MANIA.—The form of insanity which is marked by excitement and violence of act and speech may be acute or chronic.

Acute Mania may occur after an epileptic fit, childbirth, the operation of ovariotomy, or an attack of chorea, in the course of exophthalmic goitre (*q.v.*), from alcoholism (*q.v.*), at the menopause (*q.v.*), or in senility.

Ephemeral Mania is a sudden violent explosion, lasting a few hours, followed by sleep and recovery.

Delirious Mania is marked by fever, dry tongue, insomnia, rapid pulse, restlessness, and delirium.

Chronic Mania differs from acute in the greater duration of the attack and the relative moderation of the symptoms.

Recurrent or Periodic Mania is a condition in which more or less long intervals of sanity occur between the attacks, but the effect of the recurrence is to cause in time dementia, so that, although in the intervals the patient may be quiet, well behaved, and reasonable, there is manifest loss of mental power; delusions persist, although they may not be obtruded; and memory, judgment, volition, and control are weakened.

MASTICATION, PAIN IN.—The act of mastication may be painful on account of inflammation or disease in the mouth, in the maxillary bones or joints, or in the masticating muscles, or to disease in neighbouring structures,

especially the glands which are subjected to pressure by the movements of mastication.

The most common seat and source of pain are in the teeth and gums from inflammation starting from the roots of the teeth, from periodontal or periostitic inflammation.

Ulcers in the mouth, most commonly small herpetic ulceration of the lips, buccal mucous membrane or palate; syphilitic ulcers of the lips, tongue, or floor of the mouth; simple ulceration, originating from a broken tooth or from injury; or malignant or tubercular ulceration of any structure in the mouth, including lupus of the palate and epiglottis, may cause such pain.

Rheumatism of the temporo-maxillary articulation may make movement of the lower jaw painful, or even impossible. Periostitis of the jaw or growths in the bone—myeloid sarcoma, for example; inflammation of the masseter muscle; parotiditis; inflammation of the sublingual gland; salivary calculus; inflammation of the cervical lymphatic glands, especially the glands at the angle of the jaw; cellulitis of the neck (angina ludovici), extending up to and interfering with the muscles of the tongue and lower jaw. All these conditions render mastication painful, difficult, or impossible.

MASTODYNIA.—See **Mammary Pain.**

MATERNAL IMPRESSIONS.—The controversy as to the truth of the doctrine implicit in the story of Jacob's device of the peeled wands is still *sub judice.* On the one hand are innumerable more or less well-authenticated cases of defects or deformities which have happened to children whose mothers suffered from some physical shock or mental emotion during pregnancy; but, on the other hand, there is no definite relation between the impression and the result, while there are many defects or deformities not attributed to an impression, and happily numerous

impressions which are not followed by ill result. The doctrine cannot claim to have been proved scientifically, but it may be freely admitted that the mother's mental condition may interfere with the normal course of the pregnancy, and even bring about miscarriage.

Telegony is the influence exerted by a previous sire on the subsequent offspring of the same mother by other males. It is firmly held by breeders of dogs that a bitch is spoilt for breeding purposes if she has been crossed by a mongrel, but little appears to be known definitely on the subject in respect of human beings.

MATURITY (see **Puberty, Menstruation**).—When the fœtus has arrived at the seventh month of intrauterine life, it is viable, and presents the following characteristics: Its length is from 12 to 15 inches, its weight 2 to 4 pounds, there is a slight commencement of hair growing on the scalp, traces of the pupillary membrane may remain, the nails do not reach to the ends of the fingers, and the testicles are at the abdominal ring. On cutting into the epiphysis at the lower end of the femur in its centre, the *node of ossification* is present—a red, gritty spot about ¼ inch in width.

MEASLES.—This is a specific eruptive fever endemic in this country, often assuming epidemic proportions. One attack usually confers immunity, so that it is almost invariably seen in children. The incubation period is ten to eleven days. Koplik's spots (*q.v.*) may be found on the mucous membrane of the lips and cheeks on the first day or two of the attack, which is usually ushered in suddenly by coryza, cough, hoarseness, injection of the conjunctivæ, photophobia, lacrimation, a rise of temperature to 101°, and an eruption of reddish blotches on the face; by the fourth or fifth day the rash comes out fully over the body, and the temperature rises to 103° or 104°; but by the end of the week the temperature falls

critically, and all the symptoms disappear. Diarrhœa and bronchial catarrh are common; delirium does not occur often. The chief danger is from broncho-pneumonia, if the child is allowed to get up too soon, or, as so often happens among the poor, is not kept in bed at all. The effects of neglect are seen in the long list of sequelæ attributed to this disease—rhinitis, otitis media, chronic otorrhœa, ulcerative stomatitis, conjunctivitis, chorea, myelitis, and other nervous symptoms.

MEDIASTINITIS. — Inflammation of the connective tissue of the mediastinum may occur acutely as the result of penetrating wounds, or of extension of inflammation from neighbouring parts, or as a consequence of malignant attacks of exanthematic fevers. Its symptoms are pain behind the sternum, increased on swallowing, frequent pulse and respiration, high irregular fever, followed by death in three or four days. A mediastinal abscess may result from caries or tuberculosis of bones or glands, and, if large, may cause dyspnœa, dulness, episternal or intercostal bulging and fluctuation, hectic temperature, rigors, and sweating.

Chronic mediastinitis may follow pericarditis or pleurisy, tuberculosis, acute infections, or alcoholism. Its symptoms may be dyspnœa, cyanosis, cough, distended veins and œdema of the neck and upper extremities, exophthalmos, pulsus parodoxus, and albuminuria. The liver may be enlarged, and there may be ascites.

MELALGIA (Pain in the Limbs).—Severe pain in the knee, radiating down the leg, observed in pulmonary phthisis.

MELANÆMIA (see **Malaria**).—The pigment formed in the blood in the course of malarial infection, by which the skin, sclerotics, and internal organs become pigmented (see Pigmentation).

MELANCHOLIA (see **Insanity**).—Melancholia may be acute or chronic, but the acute form is marked by suddenness of onset and shortness of duration, and not by anything physically violent or energetic about the symptoms. These are depression of spirits, weeping, lamentations over more or less imaginary troubles, religious fears; the patients are frequently difficult to feed, they sleep badly, digest their food ill, are constipated, and may injure themselves, pulling out hair, inflicting worse mutilations, or committing suicide. The chronic cases show similar symptoms in a more restrained fashion; they are generally quiet and amenable, but indisposed to exertion, sitting taciturn for hours reading, or at least holding a book or newspaper, very often a Bible. They are almost invariably negligent of their dress and careless in their habits, but as dementia supervenes they become dirty and regardless of propriety.

MELANIN.—See **Melanuria, Pigmentation.**

MELANURIA.—In the condition described by Virchow as **ochronosis** the cartilages and fibrous tissues are found after death to be stained with melanin to brown or inky blackness. The symptoms observed during life are pigmentation of the sclerotics, the ears, and sometimes of the knuckles; the urine is dark when passed, or becomes dark on exposure to the air; and the joints are swollen from chronic arthritis. The pigmentation of the sclerotics is the most striking and characteristic feature, as there are symmetrically disposed triangular patches bounded by normal sclera in each eye.

It makes its appearance usually after middle life, and in itself is not a cause of death.

Its causation is obscure. In some cases there was alkaptonuria (*q.v.*), in others chronic carbolic acid poisoning (carboluria), but no such explanation was present in a certain number.

MEMORY (see **Amnesia**).—Impairment and loss of memory are discussed under Amnesia. Exaltation of memory or hyperamnesia is a natural gift, but may be to some extent acquired by practice, or may be seen under pathological conditions—as, for example, when a delirious patient mutters scraps of a language acquired in childhood, but long forgotten.

MENINGISMUS.—This is a word coined recently to describe cases in which there are many of the symptoms of meningitis, yet recovery takes place so suddenly and completely that it is impossible to believe that the meninges of the brain have been inflamed. The symptoms include coma, Chvostek's sign (*q.v.*), and involuntary passage of urine and fæces; it has been seen in influenza and middle-ear disease.

MENINGITIS (see **Meningismus**).—Inflammation of the membranes of the brain may affect the dura mater (pachymeningitis) or the pia mater (leptomeningitis).

Pachymeningitis may be the result of injury or the extension of septic inflammation from disease of the bones of the skull. Its symptoms are pain, local tenderness, fever, rapid pulse, vomiting, delirium, convulsions, and coma. There may be signs of local irritation of the brain, with spasm or paralysis of a single group of muscles. A subacute or chronic form is seen post mortem in the brains of persons who have died from other diseases and in cases of chronic insanity, but its symptoms are obscured by these conditions.

Leptomeningitis may also be due to extension of inflammation from the middle ear or nasal sinuses, or to infection by the organisms of septicæmia, pneumonia, influenza, or typhoid fever, or the specific germs of cerebro-spinal fever or tuberculosis. The disease is much more common in children, especially the cerebro-spinal

(meningococcus) and the tubercular forms; it may set in suddenly, and the child become rapidly comatose; but if conscious it complains of headache, is irritable, restless, and dislikes the light. The temperature may rise to 103° or 104°, the pulse is slow, vomiting occurs frequently, the neck is stiff, and in cerebro-spinal meningitis the head is retracted and the body curled into an S shape, with the legs drawn up. Kernig's sign (*q.v.*) is nearly constant, Chvostek's sign (*q.v.*) and *tâche cérébrale* frequent. The abdomen is retracted, the bowels confined, and urine is passed involuntarily. Strabismus, optic neuritis, and paralysis of other cranial nerves, occur in meningitis of the base; while convulsions, clonic spasms, and hemiplegia indicate meningitis of the convexity.

Tubercular Meningitis usually affects children aged from six months to ten years, but occasionally may be the result of chronic tuberculosis (phthisis) in adults, or it may be found post mortem in persons dying from acute miliary tuberculosis, but in the last case it produces no distinct symptoms. In children its onset is insidious, the child ailing, losing appetite, becoming fretful, and complaining of headache, or giving a characteristic cry and putting its hand to its head. The pupils are contracted or unequal; the anterior fontanelle bulges; squinting and ptosis are usual; the pulse is slow and irregular; the abdomen is retracted; there is some stiffness of the neck, but not such marked retraction of the head as in cerebro-spinal meningitis; the limbs become extended and paralyzed; coma and death terminate the case usually, but recovery is possible. In adolescents and adults the early stages may be marked by alteration of character, mental confusion or excitement, sometimes by aphasia or insanity, the case ending with convulsions and coma.

The differential diagnosis of the forms of meningitis is made most certainly by lumbar puncture and the bacteriological examination of the cerebro-spinal fluid. The

tapping is not only harmless, but temporarily beneficial by relieving pressure.

MENOPAUSE (Climacteric, Change of Life).—The menopause is the cessation of periodic menstruation. It takes place usually between forty-five and fifty, but may be as early as forty, or occasionally postponed to sixty. It is later in cold climates and in those who live in luxury, earlier in Jewesses. It may be premature from operations or disease, from shocks, exposure to cold, alcoholism, myxœdema, and diabetes, or delayed by myoma, cancer, or endometritis. It signals the approach of old age, and may show itself suddenly; but more usually it comes on gradually, with irregular menstruation, sometimes scanty, often excessive, occasionally for a time continuous. It is accompanied by many physical changes. There may be a disposition to put on fat, or to lose weight; the skin loses its freshness, becomes opaque and wrinkled; hair tends to grow on the lips and chin; the breasts waste, or become loaded with fat; the genitals atrophy. At this period there are complaints of giddiness, faintness, exhaustion, flushings, palpitations, perspiration, insomnia, mental depression, loss of memory, irritability, hyperæsthesia or paræsthesia (numbness, tingling), while insanity, delusions, and homicidal or suicidal impulses, may be manifested. Sexual desire usually wanes, but occasionally becomes intense.

The various symptoms of the menopause may be relieved by rest, freedom from worry and excitement, and the administration of bromides. Bromide of potassium and citrate of iron and ammonia, of each 10 grains, aromatic spirit of ammonia 30 minims, chloroform water to an ounce, to be taken three times a day.

MENORRHAGIA.—Excessive menstruation may be caused by profuse loss on each day, by prolongation of the period to more than the usual number of days, or

to its recurrence at shorter intervals. Metrorrhagia (*q.v.*) is hæmorrhage occurring at other than monthly periods, but both may concur in the same individual. The causes of menorrhagia may be any disease attended with hæmorrhage—*e.g.*, purpura, hæmophilia, scurvy, alcoholism, lead-poisoning; any cause of chronic venous congestion of the pelvic viscera—*e.g.*, heart, lung, and liver disease, abdominal tumours, tight lacing; acute and chronic inflammation of the uterus and its appendages; uterine displacements and uterine or ovarian tumours, especially myomata; and, lastly, at the approach of the menopause (*q.v.*).

MENSTRUATION.—The periodic uterine hæmorrhage which occurs in females usually commences at puberty, which in this country is generally at the age of fifteen, but is earlier in Jewesses and negresses, earlier in the rich than in the poor, and may be as early as any age from nine to thirteen, or be delayed up to twenty-five. The interval is twenty-eight days in the majority of women, but in 25 per cent. it is thirty days. The duration of the flow is from two to eight days, the average being four to five days. The amount of blood lost is 1 to 2 ounces daily. The flow is associated with a rise of the wave of vitality, indicated by a slight increase in temperature, pulse-rate, and arterial tension, with some degree of nervous instability and excitability, lunatics and epileptics being worse at this time. There is often headache, increased sensitiveness to noise and light, with some irritability of temper. The breasts and thyroid gland swell, there is a sensation of discomfort, weight and fulness in the pelvis and lower abdomen, pain in the back, irritability of the bladder, and darkening under the eyes.

It used to be thought that menstruation depended upon ovulation, but it is now known that ovulation continues

during pregnancy and lactation, while some women who never menstruate conceive and bear children.

Puberty is not the same as nubility, as early marriages lead to weakly offspring and racial degeneration. The best age for marriage is from twenty-three to twenty-five.

During menstruation rest is advisable, with avoidance of mental strain. The diet should be easily digestible, the bowels kept open, and cleanliness secured by the use of warm baths and warm douches. No surgical operation should be undertaken during the time if it can be avoided.

Vicarious Menstruation is a monthly bleeding that may take place from the gums, nose, stomach (see Hæmatemesis), rectum, lungs, bladder, breast, conjunctivæ (tears of blood), unbroken skin (bloody sweat), or from open wounds and ulcers. Comparable with it are the cases of monthly diarrhœa or flow of milk from the breasts. These cases are obscure, and the causes that have been alleged have not been satisfactorily demonstrated, but the existence of these bleedings is a fact.

While healthy women during menstruation need no drugs, if there is much pain, nervous irritability, or excessive loss that rest does not control, the patient should take for a day or two preceding and throughout the continuance of the period bromide of potassium and citrate of iron and ammonia, of each 10 grains, aromatic spirit of ammonia 30 minims, in chloroform water to 1 ounce, three times a day (see Amenorrhœa, Dysmenorrhœa, Intermenstrual Pain).

MENSTRUATIO PRÆCOX.—Early menstruation has been observed even at the age of eighteen months. It may be accompanied by other signs of puberty, and a connection has been observed between unusual fertility in the parent and early menstruation.

MENTAL DEFICIENCY (Idiocy).—Defective mental development is the result of congenital anomaly, or of developmental failure, or of some disease or injury met with in early life.

Congenital Idiots.—This class includes the **microcephalic,** whose cranial capacity is small, and whose brains often show atrophy or absence of parts—*e.g.*, the cerebellum or corpus callosum. The **porencephalic,** who are always hemiplegic. The skull is frequently asymmetrical from flattening in the frontal region, and the condition, which consists of an opening from the surface of the brain into the ventricles, is usually congenital, but may be acquired. The **hydrocephalic** (see Hydrocephalus). The **mongoloid,** with round head, oblique eyes; broad, short nose; high, narrow palate; straight, coarse hair; short, thick fingers; rough, dry skin; whose marked mental characteristic is a tendency to mimicry, but whose mental capacity shows varying degrees of development. The **cretinoid** (see Dwarfism); and, finally, the **primarily neurotic,** who have a distinct nervous heredity, are irritable, sleepless, suffer from night and day terrors, convulsions, defective attention and power of application, moral perversion, yet may be quick and responsive. The palate is high and arched, the forehead corrugated, the fingers twitch, and the hands are overextended.

Developmental Form.—The form called **amaurotic infantile cerebral degeneration** begins usually at the third month, but may be as late as the sixth, the first symptom being that the child becomes unable to sit up and hold up its head from progressive weakness of the muscles of the neck and back. Then the sight begins to fail, and the fundus shows slight neuritis, with the formation of at first a haziness, then an oval greyish-white patch at the macula twice the size of the disc, with its long axis running horizontally, while the fovea is seen as a dark red spot in the middle of the patch. The subsequent

course is progressive atrophy of muscles, with retraction of the head, spastic rigidity, and distortion of the limbs, exaggerated reflexes, spasmodic jerkings, strabismus, nystagmus, and blindness. The inevitable end is death, but the disease lasts for eighteen to thirty months. It is rare, runs in families, often more than one child being affected, those of Jewish race being especially liable, but without distinction of sex, and having no relation to consanguineous marriage, syphilis, any diathesis, or proximate cause. The **eclampsic** form is that which follows convulsions during teething, but is perhaps wrongly attributed to them. The amount of mental defect varies. The **epileptic** differs from the preceding in the fits continuing. The **syphilitic** is what has been called **juvenile paralytic dementia,** the mental defect being not manifested until puberty, when progressive deterioration sets in, the knowledge previously acquired is lost, with ultimate dementia and death.

The Accidental.—The cases that are met with in this class comprise—(1) The **traumatic,** including the birth palsies, meningeal hæmorrhages, and diplegia (*q.v.*); the post-febrile, as the result of meningitis, acute diseases, and of cerebral hæmorrhage, as in whooping-cough. (2) The **sclerotic,** in two forms—atrophic and tuberose (*q.v.*)—with spasm of groups of muscles, or paralysis and progressive mental torpor.

MENTAL DEPRESSION.—A constitutional tendency to depression is so common in many persons that as a symptom it is only important when it exceeds what may be regarded as normal for the individual concerned. It is noteworthy when it indicates a change from the habitual temperament, is persistent, and is not to be accounted for by circumstances. There are many people whose spirits fluctuate above or below the normal, and they seem to pay for periods of gaiety by compensatory

periods of depression. Such alternations are more often met with in the young, who are easily elated and also easily depressed. In aged persons depression is much more frequently the rule, and is not relieved by any corresponding gaiety, the variations being only between more and less depression.

Slight degrees of mental depression may be the result of digestive disturbance, of constipation, or of fatigue, whether of body or mind. It is a symptom of exhaustion, and passes away when recuperation can take place normally. Hence the persistent depression of old age where the recuperative powers are weakened.

Mental depression is quite consistent with sanity, for although it must be allowed to be an indication of some degree of brain failure, if it does not interfere with good judgment in serious affairs, it keeps within the limits of normal mentality, which are not fixed very rigidly, and are subject to wide individual variations.

In certain chronic diseases there is a tendency to mental depression—for example, in heart disease. The usual cheerfulness or euphoria of phthisis is well recognized, but there is marked depression in some cases.

MERALGIA PARÆSTHETICA (see **Paræsthesia**).—This name has been conferred upon an affection characterized by numbness, tingling, and aching along the outer side of the thigh. The pain is increased by exertion, and there is tenderness on pressure, with diminution of tactile and thermal sensation. The pain disappears on resting. The affection may be very persistent, but faradism has improved it.

MERYCISM.—See **Eructation.**

METASTASIS.—The phenomenon of a disease changing its seat is sometimes observed, as, for example, when gouty bronchitis disappears upon the development of a regular attack of gout in the toe, or a gonorrhœal urethritis

is replaced by epididymitis. Mumps or parotiditis may shift to the breast, pancreas, ovary, or testicle. Less accurately, the secondary growths of cancer or sarcoma are called "metastasis," but the disease remains in its original seat.

METATARSALGIA.—This condition is neuralgia of the anterior part of the foot, caused by long standing or walking. Some degree of flat-foot is usually present. The pain is dull, aching, or sometimes described as intense, burning, and boring. It is felt in the front of the foot and leg up to the thigh. Relief is obtained by rest and by taking off the boot. There are usually corns on the sole of the feet over the heads of the third and fourth metatarsal bones. The pain is due to pressure of the head of usually the fourth metatarsal bone, upon one of the interdigital nerves, or the communicating branch of the internal and external plantar nerves. It is relieved by rest and by soaking the foot in hot water. A specially designed boot may give ease, but the radical cure is by removing the head of the metatarsal bone, to which the pressure and pain are due.

METRORRHAGIA (see **Menorrhagia**).—Uterine hæmorrhage apart from menstruation occurs as a consequence of heart disease, hæmophilia, and hysteria, of local uterine disease, the puerperal state, subinvolution, polypus, myoma and carcinoma, of abortion or attempts to procure it, or of placenta prævia (see Pregnancy).

MICROMANIA (see **Delusions**).—This is a delusion in which the patient thinks that some part of himself or his whole body is reduced in size. It may be applied to delusions of abasement, as the converse of the delusion of grandeur, which is called "megalomania."

MICROMEGALY.—This term has been used to describe a condition in which some parts of the body are unduly

small and immature, while others are excessively large and prematurely developed.

MICROPHTHALMOS.—A congenital defect in which the eyes are abnormally small, not larger than peas. There may be defective vision with nystagmus, or normal vision.

MICTURITION, FREQUENT.—The desire to urinate at short intervals may be either nocturnal or diurnal, sometimes both. It may be observed as a premonitory symptom of sunstroke in India, or be caused by alterations in the quantity or quality of the urine, by conditions in the kidneys, the bladder, urethra or the external genito-urinary organs.

Frequency of micturition during the night is often one of the earliest symptoms of chronic Bright's disease. It may not be sufficient to lead the patient to seek medical advice, but is admitted in reply to questions when other circumstances have led to the discovery of the condition of his kidneys, and is then found to have been present for one or two years. Enlargement of the prostate gland, which occurs so commonly in men after fifty-five, is also attended by this symptom. In both the frequency is nocturnal.

When the frequency is during the day only, it is usually the result of some degree of cystitis, which is aggravated by the patient moving about, and is relieved by rest.

Alterations in the quantity of urine when these are marked, as in the polyuria of diabetes insipidus or mellitus, or in chronic Bright's disease, though less in the last, cause the call to empty the bladder to come often by day and by night.

The presence of highly acid or phosphatic urine is borne badly by the bladder. In the former, on standing, it deposits uric acid, in the latter earthy phosphates. The urine in the early part of the day is often more

phosphatic than later, and the troublesome frequency disappears after midday.

In organic disease of the bladder there may be inability to retain more than an ounce or two of urine, which may contain mucus, pus, or blood, or all three; and the condition present may be cystitis—simple, gouty, or gonorrhœal — calculus, tubercle, papilloma, or malignant growth.

In tuberculosis of the kidney, before the bladder is affected, frequency of micturition is a marked symptom.

Calculus in the kidney, ureter, or bladder, but especially in the last situation, is a special cause of this symptom.

Where there is nothing abnormal about the quantity or quality of the urine, or any organic disease of the kidneys, bladder, or prostate, the cause should be looked for in the external organs. In the male a long, tight, or inflamed prepuce, or in the female a urethral caruncle, are the most common causes, but careful inspection may reveal some other source of irritation. In children threadworms are a not unusual source of the trouble. In acute infections it may be due to an infective cystitis, caused by the specific microbe.

Where the frequency is intermittent and no cause can be found, when the patient is young or distinctly nervous, it may be allowed to be a neurosis, but the greatest care should be taken before this view is expressed, as early tuberculosis of the kidney is an insidious disease.

MICTURITION, PAINFUL.—Pain in connection with the act of passing urine may be—(1) at the beginning, (2) throughout the act, or (3) at the end.

The first may be due to the presence of some obstruction—a clot of blood or lymph, a small stone, or a stricture —or from inflammatory swelling in urethritis.

The second is caused by the irritating character of the

urine, which may be highly concentrated, very acid, or contain an irritant, such as cantharidin, perhaps absorbed from a fly blister; or the urethra, prostate, or bladder may be inflamed, or there may be an abscess in the neighbourhood of the urethra.

The third is highly suggestive of the presence of a stone in the bladder, the pain being referred to the glans. As the bladder empties itself, it contracts and pushes the stone into the region of the internal orifice of the urethra, a triangular area, with its apex at the prostate, and its basal angles at the opening of the two ureters. If the prostate or the prostatic part of the urethra is acutely inflamed, pain of much the same kind, referred to the glans penis, may be experienced, but there should be some evidence of these in tenderness on rectal palpation of the prostate, or urethral purulent discharge.

To some extent these factors may be combined; for example, any irritating character of the urine, such as excessive acidity, increases the pain experienced in inflammatory conditions of the bladder or urethra, so that the administration of alkalies affords relief to pain in many cases.

All that are included in the first group, with the exception of stricture, are temporary, and likely to disappear with a short rest in bed. A small stone will probably pass, but may become impacted and require the aid of a surgeon. In children, a stone that has given no indication of its presence may suddenly get impacted in the urethra and cause acute retention of urine. When it is near the meatus it may be extracted with forceps, but no violence should be used. If it cannot be withdrawn or pushed back into the bladder, it should be removed by external urethrotomy. A stone that can be pushed back into the bladder can be crushed, or removed by suprapubic lithotomy.

Stricture must be referred to a surgeon, but where

urethral discharge exists and there is a recent history, the obstruction is probably due to inflammatory swelling that will yield to a hot bath, a dose of Dover's powder and rest in bed.

Abnormal conditions of the urine should always be looked for, as by the examination of this secretion so much may be learnt about the state of the organs concerned. Clear, bright urine which turns litmus-paper red is highly acid; it may contain sugar, and will probably deposit uric acid. There may be a uric acid stone in the bladder. If there is a cloud of albumin on boiling, this probably comes from the kidneys, as inflammatory discharge from the lower urinary passages would cause more or less turbidity; but the urine should always be allowed to stand in a conical glass, and any deposit examined with a microscope, or the same result may be attained more promptly by centrifuging a drachm or two of the urine, and submitting the residue to the microscope. The only disadvantage of the latter method is that crystals which might form in the urine after standing will not be found in the fresh specimen, but cells of pus or blood, renal casts, and bladder or renal epithelium, can be found very readily, and a diagnosis made without delay.

Cystitis causes much pain; micturition is frequent and small in amount; the urine is purulent, generally alkaline, and often decomposed. In tubercular cystitis the symptoms are exaggerated, the case is often of long-standing, the urine frequently contains blood in addition to pus, and in men there may be a history or evidence of tuberculous epididymitis.

Abscess in the prostate or neighbourhood of the urethra, when not due to injury, is secondary to urethritis (gonorrhœa) or tuberculosis.

The conditions included in the third group, as well as many of those in the second, require surgical treatment, and should be referred to someone able to use the cysto-

scope and to proceed to perform any operation that may be required. Surgery can do little for tubercle of the bladder, and although removal of growths is comparatively easy and temporarily beneficial, these have a great tendency to recur and to prove eventually fatal. But the surgical treatment of calculus and of prostatic disease has made enormous strides in the last twenty years, with the result that a vast amount of suffering has been prevented, many lives prolonged and one of the numerous misfortunes of old age robbed of its worst features. The prostate enlarges in all men after fifty-five, causing at least some sluggishness in micturition, with difficulty in completely emptying the bladder, and perhaps greater frequency than had formerly been the case; but in a good many the prostatic enlargement causes obstruction, and some cold winter's day, under the influence of a chill, the gland becomes swollen and retention of urine results. By the help of a soft rubber catheter this may be relieved without serious difficulty, but it is apt to recur. The help of the catheter is sought more frequently; the bladder cannot empty itself; some ounces of residual urine are always present, and it is then time to seek more effective surgical help. The operation of excision of the prostate, if permitted before any secondary changes in the kidneys have become established, is devoid of danger, and entirely successful in restoring control of the bladder.

There is no need to say much about the treatment of calculus. That is, happily, generally performed bloodlessly by lithotrity, and stones are now recognized so early that they have rarely attained any considerable size, or have set up cystitis or nephritis.

Cystitis is now held to be invariably the result of microbic infection, trauma or the presence of foreign bodies or calculi acting only as predisposing causes. Microbes may find their way into the bladder with the urine, and the specific organisms of typhoid fever, tuber-

culosis, pneumonia, malignant endocarditis, septicæmia, and other diseases, have been found, but it is only in a small proportion of cases that cystitis results. The cystitis of typhoid fever is not always caused by the typhoid bacillus, but *Bacillus coli* and various pyogenic organisms may be present in pure culture, or associated with it. The tubercle bacillus usually reaches the bladder from tuberculous ulcers in the kidney, rarely from the blood; but when it is introduced, it may infect a healthy bladder, hence the desirability of early excision of a tuberculous kidney. Gonococcal cystitis results from the extension of a gonorrhœal urethritis into the bladder. Gouty cystitis has been usually attributed to the irritation of the walls of the bladder by crystals of uric acid deposited from the urine, but according to modern views there must be in addition some microbial infection; and although the most obvious channel is by the urethra, this may take place from the blood, the *Bacillus coli* and other organisms reaching the bladder through the lymphatics.

It is, however, most commonly by the urethra that infection is introduced. An elderly gouty man gets prostatic retention, or other urinary symptom, for which an unsterilized instrument is passed. Now that we know the danger, no one should pass an unboiled catheter; the precaution is so simple that its neglect amounts to a crime.

In the treatment of cystitis the use of antiseptic drugs obviously fulfils the indication afforded by its microbic origin. Hexamine liberates formaldehyde in the system, and has been proved to be a powerful germicide in the doses that can be safely employed. Fifteen grains may be given at bedtime, and are often usefully combined with 20 or 30 grains of bromide of potassium and a drachm of tincture of hyoscyamus. This dose may be made up to an ounce with camphor water, but when

administered should be diluted again with two or three times the amount of soda-water or other effervescing mineral water.

In gonococcal cystitis three or four capsules of red sandal-wood oil should be given daily after food, in addition to the draught at bedtime; but if the pain persists, more alkali should be added—a teaspoonful of bicarbonate of soda or potash dissolved in hot water three times a day.

In tuberculosis injections of tuberculin may be tried, and if the mischief is recognized at an early stage, the bladder may be opened above the pubis, and the affected spot curetted; but if one kidney only is involved, it should be excised.

Rest is all-important, so that, except in the mildest cases, the patient should be sent to bed, and the cure is always expedited by this precaution. The diet should be bland, chiefly milk, gruels, puddings, fruit (cooked or uncooked), vegetables, white fish; no meat, meat extracts, or meat soups. In no case alcohol. Tea, coffee, and cocoa may be allowed, except in gouty persons, where it is desired to give a purin-free diet, in which case they must be forbidden.

MILIARIA (Sweat Rash) (see **Hyperidrosis, Bromidrosis**). —As the result of excessive sweating in hot countries, or from fever, acute rheumatism, or hyperidrosis (*q.v.*), parts of the body are covered with a red papular rash, or fine colourless vesicles containing sweat. The former type is accompanied by some irritation; the latter is not, and needs no treatment.

The use of a drying powder of equal parts of French chalk and boric acid, or sponging with aromatic vinegar and water, and the internal use of belladonna or atropine, are useful.

MILIUM.—Two forms of this eruption are described—(1) sebaceous, (2) colloid. In both the cheeks, eyelids,

forehead, or genitals, may be the seat of numerous little tumours, varying in size from a pin's head to a pea, of a pale yellow colour. The first may result from inflammation of the skin, or may form in a scar, owing to obstruction of the sebaceous follicles or to excessive secretion; and when incised, the sebaceous matter can be turned out, the incision healing readily without a scar. The second form is rare, and contains colloid matter; either from colloid degeneration of the first, or, as others hold, it may originate in the sweat glands. The only effective treatment is removal by electrolysis, excision, or carbonic acid snow.

MILKY ASCITES (see **Dropsy, Chyluria**).—The effusion in the peritoneal cavity may be chylous, from distension and rupture of lacteals into the peritoneum, or from fatty degeneration of a purulent effusion in suppurative, tuberculous or cancerous peritonitis.

MIMETIC JOINT AFFECTIONS (see **Hysteria**).—In hysteria, or occasionally in a previously healthy person, there may be complaint of sudden pain in a joint, in consequence of a slight or supposed injury, or exposure to cold, or in imitation of the joint affection of another person. The appearance of the joint is normal, but there is excessive tenderness and immobility; but the symptoms vary, the rigidity disappearing when the patient's attention is distracted. As a result of disuse there may be muscular wasting and contraction.

The treatment is by massage, passive movements, douching, baths, and electricity.

MIRROR-WRITING.—Some persons, when asked to write with the left hand, do so from right to left, forming the letters as ordinary handwriting appears when reflected in a mirror. The subjects of right-sided hemiplegia sometimes do this when trying to write with the

left hand, and are not able to perceive that it is wrong or that the writing is illegible. It is said that left-handed persons have a natural tendency to write like this.

MOLLITIES OSSIUM (Osteo-Malacia).—This is a rare disease, marked by softening and bending of the bones; it is endemic in Central Europe, is probably hereditary, is more common in women, but not confined to that sex, and occurs usually between the ages of twenty-five and forty-five in women who have had repeated pregnancies. The symptoms begin with continuous pain in the sacrum, spine, and pelvic bones; later in the legs and arms, increased by pressure and movement. There is difficulty in walking; the gait is waddling; such nervous symptoms as increased knee-jerks, ankle clonus, tremor, muscular weakness, and Romberg's sign (*q.v.*), make their appearance early. Owing to softening of the bones, the pelvis is flattened from before backwards, and the heads of the femurs compress it laterally, so that parturition becomes impossible; the long bones become bent, and fractures may occur. The urine contains excess of lime. The patient becomes eventually bedridden, and death may result from intercurrent disease.

There is no known specific treatment, and removal of the ovaries is now discredited; but recovery may take place under improved hygiene, good food, brine baths, cod-liver oil, phosphorus, and calcium. Pregnancy must be avoided, as it aggravates the disease, and necessitates premature delivery or Cæsarian section.

MOLLUSCUM CONTAGIOSUM. — An eruption of rounded, pearl-like bodies, yellowish-white in colour, semitranslucent, with a slightly inflamed base, often seen near the eyes, but occasionally distributed all over the trunk and limbs. The contents of the little tumours can be turned out, and if the base is touched with a little pure carbolic acid, healing is rapid, and there is no

recurrence, but it is a prolonged and painful process if the tumours are numerous. The contents under the microscope consist of the so-called molluscum bodies, which may be pounded with sand and bouillon, filtered through a Chamberland filter, yet the filtrate, if inoculated, will reproduce the disease, indicating that the contagion is due to some ultra-microscopic organism.

MONOPLEGIA.—Paralysis of a single limb is most often seen in children (infantile paralysis), where it is caused by an attack of anterior poliomyelitis, a specific inflammation involving the anterior horns of grey matter in the spinal cord. This disease is caused by a specific organism, the meningococcus of Weichselbaum. It sometimes occurs in epidemics (cerebro-spinal meningitis), but is more usually seen in this country as a sporadic affection, attacking young infants in the first or second year of life. The general symptoms may attract no attention, but when the mother tries to make the child walk, she notices that one leg appears useless; or she may have observed in washing and dressing the baby that one limb is cold, blue, and weak. As the child grows, the difference becomes more marked; the affected limb is seen to be shorter, the muscles flabby and less developed, or a group of muscles about the hip or the shoulder may be wasted, and the movements of the joint in question greatly restricted or lost. There is no rigidity. When the disease is discovered, it is usual to begin with cod-liver oil internally, and massage and faradism to the affected muscles, and as a certain amount of recovery usually takes place, these measures get the credit. Even if useless, they should not be omitted; for as complete recovery hardly ever takes place, the practitioner in attendance would be blamed for the bad result if he had failed to follow the customary procedure.

Monoplegia may also be due to a growth involving the

cortical centre in the brain for the arm or leg. If this is fortunately due to a syphilitic gumma, recovery may be hoped for, and vigorous treatment by mercurial inunction and iodide of potassium should be instituted. In using mercurial inunction the grey ointment should be supplied in separate packets of 40 to 60 grains, to be rubbed thoroughly into the thigh, axilla or groin, at night; and the next day a hot bath must be given, or the skin will get sore, general dermatitis result and probably premature salivation. The seat of the inunction should be constantly changed, to prevent any soreness. After three weeks the course should be stopped for the same time and then resumed. If the gums get sore at any time, the inunction should be stopped. Iodide of potassium should be given by the mouth, beginning with 10 grains three times a day, and the dose increased if the patient tolerates it.

Where there is a well-localized, non-syphilitic tumour, a surgical operation may be permitted, as in a few cases brilliant results have been obtained, and, unfortunately, no other means exist for its removal.

Monoplegia may also be the result of hysteria, or of neuritis due to injury to peripheral nerve trunks, as from pressure in the axilla in "crutch palsy," or from going to sleep with one arm over the wooden back of a chair.

MORAL IMBECILITY.—Some children who show no mental defect, but may be quick to learn and skilful at manual labour, show entire absence of moral sense. They steal and lie, are cunning; but while ready to profess regret and promise amendment, they prove incorrigible. Such cases are detrimental to their companions and should be treated in special schools, where they can be kept under control; but the outlook is unpromising.

MORPHINISM (Opium Eating, Opium Smoking).—The use of opium is very general among Asiatic people, and

the vast majority use it moderately, the proportion who abuse it being not greater than those amongst ourselves who abuse alcohol. Moreover, it may be said that the excitement of opium does not lead to crime, as is so frequently the case with alcohol. Among Asiatics its greatest disadvantage is its cost, which is high relatively to their low incomes.

The symptom produced by a small dose of opium or morphine is a slight general sense of well-being, and in most cases that is all. Some persons are, however, so intolerant of the drug, that even a small dose causes headache, nausea, or even vomiting, loss of appetite, dry mouth, and constipation. It removes fatigue, and consequently increases the capacity for work, while in such doses it has none of the secondary ill-effects that alcohol even in small doses possesses; nor is it necessary to increase the dose in order to continue to obtain benefit from it. But *intoxication* from opium or morphine is a most dangerous vice, as to produce the desired result the dose is constantly raised, and finally fails in spite of large quantities being taken. If any patient using opium or morphine asks for larger doses, it is the toxic, and not the therapeutic, effect that is sought, and every effort should be made to stop its use.

Opium is commonly taken by Asiatics in a small pill, or macerated in water. Opium smoking is only employed for its intoxicating effect, and is therefore always vicious.

Morphinism is a vice of Europeans, and is effected as a rule by hypodermic injection; but there is so much difference in the result of the same dose when it reaches only the subcutaneous tissue, or by chance is introduced into a vein, that the dosage is uncertain. Morphinists are restless, wayward, unhappy people; their arms and legs are scarred by the repeated punctures, their pupils are contracted, tongues dry, breath often foul, and they

suffer from loss of appetite, indigestion and constipation. Sleep fails them if they cannot gain it under the influence of the drug; they become generally out of condition, and are as a rule so miserable that they would gladly escape from the slavery of the habit if they possessed the strength of will to endure the depression which they suffer in the intervals of morphine intoxication. The only effective means of rescue for such unhappy beings is institutional, under the care of a physician experienced in such cases. Hypnotism in some instances is a useful aid in their treatment.

MORPHŒA.—The name "morphœa" is an old term formerly applied to patches of leprosy, but now restricted to circumscribed depressed areas of dead, white, inelastic, brawny skin, generally situated on the upper part of the trunk or back of the neck. It is not distinguished from scleroderma, except by being circumscribed. The patches sometimes disappear, but are usually persistent. They develop rapidly, but their cause is unknown, and no treatment is satisfactory.

Wilson's morphœa is a white variety of keloid (*q.v.*).

MORVAN'S DISEASE (Painless Whitlow).—This condition, described by Morvan as occurring among fishermen in Brittany, is now generally admitted to be a result of syringomyelia (*q.v.*). It is deep ulceration and necrosis of the terminal phalanges of the fingers, caused by pyogenic infection of trifling wounds and abrasions, which are neglected owing to the analgesia.

MOUNTAIN SICKNESS.—An altitude which has been fixed at 16,500 feet, either on a mountain or in a balloon, causes hurried respiration and pulse, great sense of fatigue, loss of appetite, gasping, headache, pain in the back, palpitation, bleeding from the nose and gums, injection of the conjunctivæ, vertigo, tinnitus, and slight

rise of rectal temperature, but the last may be only due to exertion. Nausea and vomiting, which often occur, are held not to be direct results. Insomnia, or at least impossibility of sleeping in a recumbent position, has been noted, while Cheyne-Stokes breathing (*q.v.*) has been observed during sleep.

MULTIPLE MYELOMA.—Multiple myeloma is a form of malignant disease characterized by a tumour in bone, followed by numerous secondary growths in the ribs, sternum, and vertebræ. It attacks males more than females, and occurs in later middle life. The symptoms are pain, tenderness, progressive deformities, bending or fracture of bones, compression of the spinal cord, albumosuria (*q.v.*), cachexia, and death. It is always fatal, but not necessarily rapid in its course, one case having lasted eight years.

MURMURS (see **Heart Disease**).—Blowing sounds heard by auscultation are called "murmurs." They are heard in valvular disease of the heart, over the great vessels and veins in the neck in anæmia, over aneurisms; while the respiratory sounds audible over the trachea and lungs are often spoken of as the **respiratory murmur**.

Cardiac Murmurs, synchronous with the first sound of the heart, are called **systolic**; with the second sound, **diastolic**; and there are in addition **presystolic** and **post-diastolic** murmurs. They are qualified as soft, harsh, rough, or musical.

Venous Murmurs are continuous and humming, and have been compared with the humming of a top (*bruit de diable*).

Aneurismal Murmurs are heard over the tumour, and are always systolic; but a systolic murmur can be heard over any large artery if pressure upon it is made with the stethoscope.

The Respiratory Murmur is produced by the air entering or leaving the air-passages and lungs. Over the *trachea* the sounds made on inspiration and expiration are approximately equal, and have a characteristic harsh tone; but over the lungs the expiratory murmur is only one-fourth the length of that of inspiration, and the tone is soft. In catarrhal conditions inspiration is harsher and expiration prolonged, while when the air vesicles are filled by consolidation or obliterated in pneumonia, tuberculosis, or chronic fibrosis, the soft vesicular sound disappears, and the murmur has the character of tracheal or bronchial breathing.

MUSCÆ VOLITANTES.—Specks seen before the eyes have no pathological significance, but they are more common in anæmia. They are not fixed or definite, and should not be mistaken for the shadows produced by the presence of foreign bodies, fragments of blood-clot, or particles of cholesterin in the vitreous which can be seen with the ophthalmoscope.

MYALGIA.—See **Lumbago.**

MYASTHENIA GRAVIS.—This not very uncommon condition may be mistaken for hysteria or bulbar paralysis. There are no post-mortem appearances. It is often fatal, and death may occur suddenly. It attacks both sexes, usually between the ages of twenty to forty, and has followed acute infections, or may appear in the course of anæmia or exophthalmic goitre.

Its symptoms are rapid exhaustion of muscular power after repeated exercise, so that movement becomes lost. After an interval of rest power is regained. The result follows equally on voluntary movement and faradic stimulation, the latter giving the **myasthenic reaction**, or rapid failure of response. The affection is usually seen first in the ocular muscles, causing diplopia and ptosis, next

in the limbs, but may involve the muscles of mastication, swallowing, and speech. Dyspnœa and palpitation may be present. The disease is progressive, the patient becoming unable to walk more than a few steps, or to sit up for more than a minute or two, or even to turn in bed. Cold aggravates the condition. There is no pain, but a sense of fatigue or aching in the muscles may be experienced. The reflexes and cutaneous sensibility are not altered. The duration of the disease varies; it often terminates in eighteen months, but may last for years. Recovery is possible. The treatment is rest, warmth, and the internal administration of iron and arsenic.

MYCETOMA (Madura Foot).—This is a fungous disease of the feet (rarely of the hand) met with in India, occasionally in America, caused by a ray fungus allied to actinomyces (*q.v.*), and favoured by going barefoot. It usually begins by swelling or thickening of the great toe, then one or more swellings form, which burst and discharge pus, containing black, yellow, or red granules, varying in size from a pin's head to a pea. The foot becomes enlarged, rounded, the toes buried by the swelling, and walking is accomplished with some pain and difficulty; the skin is brawny, inelastic, and the arch of the foot gives way from softening of the bones. The general health is often little affected, but if abscesses form, there may be fever, emaciation, and septicæmia. The only treatment recommended is amputation, but iodide of potassium in large doses, which is so successful in actinomycosis, should be tried.

MYELITIS (see **Paraplegia**).—Acute softening of the spinal cord as the result of injury, extension of inflammation from caries, or tuberculosis of the vertebræ, or from infectious diseases, especially syphilis. The symptoms are paraplegia, with loss of sensation to touch, pain and temperature in the paralyzed limbs, girdle pain, and

rapid formation of bedsores. If the lesion is dorsal, there is retention of urine and involuntary emptying of the bladder; but if the lesion is lumbar, the sphincters of the bladder and rectum are paralyzed, and urine constantly flows away. Cystitis is apt to occur as a complication. If recovery takes place, generally more or less spasticity of the legs and motor weakness remain.

MYOCARDITIS.—See **Heart Disease.**

MYOIDEMA (Myotatic Irritability).—In phthisis, and sometimes in pneumonia, the pectoral muscles are irritable, so that when sharply tapped a localized contraction takes place, the fibres rising for a moment in a little pointed heap.

MYOMA (Fibroid Tumour).—A myoma, or fibroid tumour, is a part of the uterus, solid and elastic. Its growth is slow, menstruation persists, and there may be menorrhagia. The uterine cavity is elongated.

MYOTONIA CONGENITA.—Congenital atony of the muscles, local or general. The child can neither stand, sit upright, nor hold up its head. The muscles are flabby, but not atrophied; their electrical reactions may be weak or normal; the tendon reflexes are absent. There may be mental dulness and defective vision. It is not a family disease, or caused by malnutrition, rickets, or syphilis. The disease is not progressive, and recovery may take place.

MYXŒDEMA.—This condition is the consequence of functional defect of the thyroid gland. Three forms are recognized: (1) True myxœdema; (2) post-operative myxœdema, the result of operation for endemic goitre; and (3) congenital myxœdema, or cretinism (see Dwarfism).

In true myxœdema the symptoms, which are usually

preceded by atrophy of the thyroid, develop slowly, but occasionally more rapidly in young persons. There is first disinclination for exertion, followed by chilliness, swelling of the face, which loses its lines of expression; the eyelids and loose skin below the jaw are distended, but do not pit on pressure; the skin is yellow, the cheeks are flushed, the lips pale and thick. When the disease is fully established, the hair is scanty, the scalp dry and scaly, the body hair absent, the teeth loose, the mouth dry, the tongue swollen, the skin dry, rough, and covered with a fine powdery desquamation, the skin over the knees and elbows being especially thickened and cracked; the hands become thick and spade-like. The pulse is slow, regular, and of low tension; constipation and piles are common. Hæmorrhages may occur from the gums, nose, and uterus. The urine is of low specific gravity (1008 to 1018), and sometimes contains albumin. The mental condition is dull, the temper placid, eating and dressing are performed very deliberately, speech is slow and monotonous, the gait is heavy and hesitating from muscular weakness and impaired co-ordination. Vision, hearing, taste, smell, and sexual feeling, are usually diminished. There may be headache, neuralgic pains, giddiness, visual and auditory hallucinations which do not deceive the patient; but myxœdema is a recognized cause of insanity, the apathy at times passing into melancholia, with delusions of suspicion and ultimate dementia. Drowsiness is common, and this may go on to coma.

Nothing definite is known as to the cause, but in youth the onset may have been preceded by an acute infection. In other cases it may follow exophthalmic goitre, and instances have been recorded of its occurrence as a result of destruction of the gland by syphilis and by actinomycosis. It is more common in women, and usually supervenes in middle life between thirty-five and forty-five,

being rare before twenty and after forty-five. There is a distinct hereditary predisposition, several cases having occurred in the same family. It is confined to temperate climates.

The prognosis has been greatly improved by the results of thyroid feeding, but the presence of heart or kidney disease or insanity is unfavourable.

The treatment consists in the administration of thyroid gland, beginning with small doses. A warm climate, warm clothing, and the use of warm baths or of vapour or hot-air baths, is beneficial.

NAILS, DEFORMITIES AND DISEASES OF.—Transverse furrowing of the nails is a consequence of congenital syphilis, also of inveterate skin diseases, chronic eczema, or psoriasis.

White spots and lines occur after fevers and other illnesses.

Thinning and atrophy after acute and exhausting illnesses and severe affections of the skin, acute pemphigus, exfoliative dermatitis, pityriasis rubra.

The nails may be shed in general malnutrition, diabetes, phthisis, and syphilis.

Incurvation of the nails is associated with clubbing of the fingers and toes in congenital heart disease and chronic affections of the organs of respiration, in syringomyelia, Morvan's disease, and leprosy (see Clubbing of Fingers).

Disease of the nails may take the form of **onychia maligna,** a scrofulous affection in youth, marked by pain, suppuration, ulceration, and loss of the nails. Its treatment is by stimulating dressings and the internal administration of cod-liver oil, syrup of the iodide of iron, and calcium chloride.

Syphilitic Onychia occurs in constitutional syphilis, either congenital or acquired. The nails become thick-

ened, ridged, brittle, and may be shed. The treatment is specific (see Syphilis).

NARCOLEPSY (Lethargy, Negro Lethargy).—A condition of sleep or stupor met with in hysteria, insanity, and sleeping sickness.

In hysteria there may be prolonged sleep or lethargy, sometimes extending over years, the patient rousing sufficiently to attend the calls of nature and to take food slowly, but not speaking. In other cases there may be apparent coma with rigidity of limbs, in which the patient can hear, but not respond; this condition may come on in a nervous patient during imperfect general anæsthesia from ether or chloroform. Stupor is not uncommon in chronic melancholia and delusional insanity.

The **Lethargy of Adolescence** is marked by loss of interest in companions, games, and work, by aversion to his family, and impatience of parental control. It occurs in those with neurotic heredity.

Sleeping Sickness, or Negro Lethargy, is an African endemic disease caused by infection with the *Trypanosoma gambiense*, communicated by the bite of the tsetse-fly (*Glossina palpalis*). The trypanosome enters the lymph-stream, causing at first enlargement of the lymphatic glands; three or four years later it gets into the cerebro-spinal fluid. The symptoms are: impaired muscular power and endurance, mental torpor, sometimes a maniacal outburst; the patient falls asleep at work or meals; the gait is shuffling, and he may stagger, stumble, or fall; the expression of the face is vacant, the eyelids droop, the body wastes; tremor, twitching, or convulsions may occur; general weakness and bedsores develop, death following about two years after the lethargy begins. The reflexes, sensation and the fundus oculi remain normal.

So far no treatment has been successful.

NETTLE RASH (Urticaria).—A transitory or recurrent affection of the skin, which may be erythematous or in wheals. It may follow eating fish, especially shell-fish, ptomaine-poisoning, the irritation caused by certain plants or insects (caterpillars), the injection of curative sera, the rupture of hydatid cysts, the administration of drugs (quinine, salicylates), heat or cold or pressure to the skin in gouty or rheumatic persons, gastritis or gastro-enteritis. The rash is accompanied by much irritation or burning.

There is no specific treatment, but the causal indications should be followed, and the local irritation allayed by dusting-powders, evaporating lotions of ammonia or rectified spirit.

NEURALGIA (see **Pain**).—**Tic douloureux** is a violent and obstinate neuralgia of the fifth nerve, affecting one or all of its branches. Usually in middle life, without warning and from no known cause, there is an attack of sudden pain in one division of the fifth nerve. The pain is compared to boring with a red-hot wire; it may be continuous for hours or days, or it may disappear suddenly, but returns and becomes more severe, so as to render life intolerable. It prevents sleep, and the patient fears to eat, talk, or smile, lest he should provoke a paroxysm. The pain is rarely bilateral. Women suffer more than men. The only satisfactory treatment is by excision of the Gasserian ganglion.

NEURASTHENIA.—This term is comparatively modern, but means no more than the older expression, "nervous debility." The subject has been closely studied in modern times, because, under the present-day conditions of civilized life and the pressure upon the nervous system induced by the excess with which both business and pleasure are pursued, there are many more persons who suffer from symptoms that may be properly attributed

to nervous exhaustion than were to be found in days when life was simpler or less strenuous. There is reason to believe that the habitual use of such nerve poisons as tea, tobacco, and coffee plays no inconsiderable part in this weakening of nerve fibre, and that the abuse of alcohol, injurious as it is in many respects, has not this effect. Neurasthenia involves a general lowering of capacity, excessive liability to fatigue, slow recuperative power, and enfeeblement of all the bodily functions. It is not inconsistent with considerable mental attainments, but interferes greatly with their exercise. Affecting as it does to a greater or less degree the functions of all the organs, its symptoms are protean in character, and sufferers from it present the most diverse complaints, which, from their very variety, are liable to be mistaken either, on the one hand, for organic disease, or, on the other, for the effect of imagination or "hysteria." While every practitioner admits the reality of the condition, it is very far from true that its manifestations are always recognized.

Its treatment demands prolonged rest and the avoidance of those nerve-destroying influences which generate it. This involves such a revolution in the habits of the patient that there is too often great difficulty in obtaining his co-operation. He is by no means easily convinced that the diagnosis is correct, and would be much more willing to believe that he is suffering from some organic disease. Moreover, the sacrifice demanded may mean giving up a source of income upon which he and his family depend, so that he may feel himself compelled to struggle on, and follows the advice given in part only.

The most successful treatment, where it can be carried out, is a rest cure involving three months or more in bed, nutrition being maintained by general massage and a simple but full diet, the regimen being pursued in the open air, or at least with open windows.

NEURITIS (see **Diphtheria, Alcoholism**).—This is a condition which arises as a consequence of many poisons, of which the chief are alcohol (*q.v.*) and lead (*q.v.*), the toxins of infectious diseases, notably diphtheria (*q.v.*), and to a limited extent of chronic constitutional diseases, such as gout and diabetes. The symptoms are always weakness and wasting of muscles, either local or general, often numbness, tingling, cramps and pains, frequently, too, local hyperæmia, sweating and tenderness. The treatment is by exclusion of the poison, if that be possible and by giving eliminant drugs. If the muscles will react to any form of electricity, that should be continued; but hypodermic injections of strychnine are in infective cases the best treatment (see Diphtheria).

NEUROMIMESIS.—The nervous mimicry of organic disease met with in hysteria (*q.v.*) (see Mimetic Joint Affections).

NEUROSIS.—A nervous disease which has no definite anatomical basis is called a "neurosis."

NIGHT BLINDNESS.—In nyctalopia, or night blindness, the patient sees normally during the day or by a strong artificial light, but by twilight, or in a dimly lighted room, and still more out of doors in the dark, he cannot see at all. In this country it is rare, and is associated with definite ophthalmoscopic appearances, especially with retinitis pigmentosa, or syphilitic choroido-retinitis. In the former case it commences in childhood, and increases slowly until complete blindness may result. In the latter the affection develops some time subsequent to syphilitic infection, but is not progressive, although the amount of damage done to the retina remains permanent.

An acute form of the disease is due to exposure of the eyes to a very bright firelight from sitting too near the fire, or from exposure to the great heat of fires in foun-

dries. Defective nutrition favours the effect, and in scurvy it may happen from the action of the strong glare of sunlight on the unshaded eyes.

There is a popular belief in India that it is toxic from abuse of the drug *Cannabis indica*, or Indian hemp, which under the names of "ganja" or "bhang" is so largely used mixed with tobacco for smoking, or in sweetmeats.

In those forms dependent upon pigmentation of the retina no remedies can be of use, but in the other forms much may be done by following the etiological indications, by protecting the eyes from strong firelight, by improving the general nutrition, and by abstinence from deleterious drugs.

NOCTURNAL ENURESIS. — The evacuation of the bladder during sleep is almost confined to childhood, though in some cases the habit may persist, at any rate as an occasional event, into early adult life.

One of the earliest matters a child is trained to do is to control his bladder and to avoid wetting his clothes or his bed, a lesson which is soon learnt by normal children. Failure to do this marks some degree of mental defect, and in idiots it is never acquired.

If a healthy child is made to pass water before going to bed, he should be able to wait until morning without difficulty. But there may be some source of local irritation, such as thread-worms, or an elongated or tight prepuce, which stimulates the desire to micturate.

In the absence of any such condition or of anything abnormal about the urine, the condition may be due to weak tone of the sphincter of the bladder. It is difficult to believe that sleep could be so profound that a distended bladder would not awake the child, but where the sphincter action is weak, it is possible that a moderate amount of fulness may be sufficient to cause relaxation, and this is the hypothesis upon which is based the atropine treat-

ment in general use. That treatment is fairly often successful, but it fails in so many cases that other possible explanations must be considered. Abnormally profound sleep is one, and simple laziness and unwillingness to rise from a warm bed is another. Attempts are made to prevent the former by making the patient sleep on a firm hair mattress, with only light bedclothes. The child should be roused and made to pass water the last thing when his nurse or mother is going to bed, his last meal should not be later than six o'clock, and should be quite light. No tea, coffee, cocoa, meat soup or extracts, should be permitted at the evening meal, and jam and sweets should be absolutely forbidden. Animal food should be allowed in small quantities only at the midday meal.

The effect of laziness may be counteracted by the fear of punishment, and a threatened whipping, without having to be inflicted, may be quite sufficient to effect a cure. Older children may be made to feel the shame of such a habit, and those who indulge themselves at home will from fear of ridicule take care that it does not happen at school.

A mechanical reinforcement of the sphincter has been applied by Cahier, who injects 60 c.c. of normal saline into the perineum on each side of the raphé. He claims that out of thirty cases, eighteen were cured by a single bilateral injection, six by a second, and only six were not benefited.

In a small minority of cases the cause must be looked for in some abnormal mentality which may not amount to incapacity, and which in course of time will disappear.

The atropine treatment consists in giving a small dose of liquor atropinæ (B.P.) at bedtime, beginning with $\frac{1}{4}$ drop, and increasing by the same quantity every night until physiological symptoms are produced.

℞ Liq. atropinæ .. .. .. ♏xii.
Tr. aurantii .. .. .. ʒi.
Aq. .. .. ad ʒvi.
Sig.: A teaspoonful at bedtime, gradually increased to four, five, or six teaspoonfuls.

NODDING SPASM (Spasmus Nutans).—The affection called "nodding spasm" affects infants under two years of age, generally between the ages of four and twelve months. It consists of involuntary nodding (forward) or shaking (lateral) movements of the head, with nystagmus (*q.v.*) (lateral, vertical, or rotatory), better seen when the head is steadied by the hand, and by hippus (*q.v.*). There is no impairment of intellect. Weakly, rickety children chiefly suffer. It begins suddenly, usually in midwinter, from absence of sunlight and from cold. It lasts from six weeks to six months, sometimes longer and may recur the following winter. The treatment is by fresh air and sunshine, with good food and cod-liver oil, or phosphorated cod-liver oil.

NODULES.—Subcutaneous rheumatic fibrous nodules form over the great trochanter, behind the elbow, over the heads of the metacarpal bones or proximal phalanges. They are painless, non-adherent to the skin, often movable; they come suddenly, and disappear as quickly, or persist. They may occur in persons who have never suffered from acute rheumatism or heart disease.

NUMBNESS (see **Paræsthesia**).—Numbness is a sensory symptom met with in many nervous affections, or may occur transiently in consequence of a blow or pressure on a nerve trunk.

NUMMULAR SPUTA.—When the expectoration is moderate in amount, but chiefly composed of pus, it forms in the spit-cup flat, round masses, which somewhat resemble pieces of money, hence the name.

NYMPHOMANIA (see **Phobias and Manias**).—Excessive or uncontrolled sexual excitement in the female.

NYSTAGMUS.—Oscillation of the eyeballs may be persistent or only apparent when the eyes are drawn strongly in a particular direction; it may be horizontal, vertical, rotatory, or mixed. It is almost always bilateral and conjugate, except when associated with nodding spasm (*q.v.*); it commonly accompanies defective vision in early childhood, but is only the result of complete blindness in adult life, but there may be no defect of vision. It is seen in albinism (*q.v.*), mental deficiency (*q.v.*), syringomyelia (*q.v.*), disseminated sclerosis (*q.v.*), and other nervous diseases. Apart from visual defect, three forms are recognized: (1) Miner's nystagmus; (2) that depending upon paresis of ocular muscles; and (3) on spinal or cerebellar disease. The first is due to strain of the ocular muscles from the miner working by a bad light in a cramped position, the second from tremor of the weakened muscles, and the third from central irritation.

The treatment of miner's nystagmus involves giving up work in the pit and seeking occupation in daylight, when the prospect of recovery is good.

OBESITY.—The accumulation of excess of fat in the subcutaneous cellular tissue, in the omentum and mesentery, and around the muscular wall of the heart, is a condition which is called "corpulence" or "obesity." To some extent it is normal about and after middle age, being indicated by the "fair round belly" that Shakespeare regarded as appropriate to that period of life. Such a moderate degree of obesity scarcely calls for comment; it is due to the facts that after thirty the physiological demand for carbohydrate food and the capacity for burning it into water and carbonic acid gas become diminished, while the appetite is not correspondingly lessened; the pleasures of the table and the facilities for enjoying them

are often increased, and bodily activities have in a great measure ceased. Games are given up, walking is no longer economically necessary, so that a carriage, motor-car, cab or tramway, is used to transport the body which year by year grows more unwieldy, while the muscles become weaker and less capable of playing their part. Indulgence in alcohol helps this process. The state of things just described is the ordinary corpulence of the elderly, which is to a large extent under the patient's control. They are for the most part unwilling to make the change in their habits required to effect a cure, but think they are performing great sacrifices by eating toast instead of bread, giving up potatoes, and drinking only one glass of port after dinner. They go to Harrogate or some German spa for a short cure every autumn, and they die at about sixty.

True obesity is a pathological condition that occurs independently of any habit. There are two types—the plethoric and the anæmic. The plethoric type is in the majority of cases met with in persons whose family history reveals a tendency to obesity, gout, gall-stones and renal colic. It generally shows itself before thirty, affects both sexes, is for many years consistent with good general health, much bodily activity, and is usually associated with a cheerful temperament. After middle life these persons are prone to develop gout, diabetes, or Bright's disease, the heart becomes overloaded with fat and they die from heart failure, angina pectoris, or apoplexy.

The anæmic type is more common in women, and the disease results from chronic ill-health from, *e.g.*, repeated pregnancies, lactation, pneumonia, enteric fever, or uterine troubles. They look pale and unhealthy, are disinclined for exercise, fastidious in their appetites, and suffer from many minor ailments—headache, dyspepsia, constipation, catarrh, and menstrual irregularities—but

they are not specially prone to develop the grave conditions to which the former group are liable.

The treatment of true pathological obesity is difficult, and only moderately successful. It is in the class of alimentary obesity, which is not a disease at all, that the mineral waters and other remedies effect such marvels. In the plethoric cases restriction of diet will do much, but it is impossible to maintain such a strict regimen as is recommended while the patient is pursuing his usual occupation. The diet must be calculated from a table of food values, aiming at a reduction to 15 heat units per kilogramme (2 pounds) of body-weight, but this must be brought about gradually under the advice of a physician. Where it is possible to send the patient to a sanatorium for treatment, this should be done. The treatment of the plethoric cases may be undertaken with some assurance of at least partial success, but the anæmic obese are frail people, who must be dealt with cautiously. They are suitable subjects for treatment by open air, sun-baths, general massage, Swedish exercises, and the Bergonié chair. Iron and arsenic should be given after meals, and any organic or functional derangement must be corrected so far as may be possible. A salt-free diet should have an extended trial.

ŒDEMA.—See **Dropsy.**

ŒSOPHAGISMUS.—See **Dysphagia.**

OLD AGE.—Normal old age is the consequence of the lapse of time, and is marked by whitening of the hair, loss of teeth, weakening of the muscles, calcification of cartilages, presbyopia and impairment generally of the special senses, diminution of cutaneous sensation, of sexual desire and power, and ultimately of all the functions of the body. It is inevitable but may be postponed by regular exercise and temperate habits.

OPHTHALMOPLEGIA.—Paralysis of the muscles of the eye is called **ophthalmoplegia externa** when it affects the external muscles of the eyeball, as is the case in many diseases of the brain and nervous system (see Syphilis, Meningitis, Migraine, Tabes Dorsalis); but this word is more often used to indicate **ophthalmoplegia interna,** marked by dilatation of the pupil and paralysis of accommodation, or one of these. It is generally syphilitic, but it may be the result of influenza or of lead or tobacco poisoning. There is an acute form in chronic alcoholism, marked by delirium, vomiting, and somnolence, which may end fatally.

OPISTHOTONOS (see **Tetanus, Convulsions**).—In this form of convulsion the body is arched backwards so that it may rest on the head and the heels. It is seen in tetanus, strychnine-poisoning, meningitis, and hysteria.

OPTIC NEURITIS.—Inflammation of the optic nerve or nerves may be unilateral or bilateral, and may cause pain, photophobia, and impaired vision, but all these symptoms may be absent. On ophthalmoscopic examination the edge of the disc is blurred, its margin is abnormally vascular, its surface hazy; the physiological cup is filled; the vessels are obscured or hidden in parts; the veins are dark, full, and tortuous; the arteries normal in size or narrowed; while in the neighbourhood the retina may show hæmorrhages or smooth opaque white spots. Unilateral neuritis is usually due to some local cause, such as orbital cellulitis, but occasionally it may be caused by intracranial disease. The commonest cause of optic neuritis is intracranial growth or tumour, but it occurs in meningitis, either traumatic, syphilitic, or tubercular; in abscess, disease of the ear, or the growth of a small gumma or tubercle on the nerve itself; in insular sclerosis, myelitis, Bright's disease, chlorosis, pernicious anæmia, and loss of blood from hæmorrhage; in acute fevers,

malaria or influenza; in diabetes; and in poisoning from lead, alcohol, and bisulphide of carbon.

ORAL SEPSIS.—See **Pyorrhœa.**

ORIENTAL BOIL.—See **Boil.**

ORTHOPNŒA.—See **Dyspnœa.**

ORTHOTONOS.—In this form of muscular spasm the body is rigidly extended in a straight line. It is seen in tetanus and in the later stages of tubercular meningitis.

OSTEITIS DEFORMANS (Paget's Disease).—The symptoms in this disease of the bones are kyphosis (*q.v.*) of the cervical and dorsal spine, the head falls forward, the spine is painful and rigid. It is eventually fatal. It has been regarded as inflammatory, but its relation to syphilis is probable, as in a recent examination of nineteen cases, fourteen gave a positive Wassermann reaction (*q.v.*).

OSTEO-ARTHROPATHY.—See **Charcot's Joints, Tabes Dorsalis, Syringomyelia, Clubbed Fingers, Acromegaly.**

OSTEOCOPIC PAIN.—Wearing, severe pains in the bones, which are a symptom of secondary syphilis.

OSTEOMYELITIS. — Staphylococcal inflammation of bone, including the marrow and periosteum, occurring usually in childhood or youth, mostly as the result of injury. The local symptoms are severe pain, swelling, œdema, diffuse redness of the skin with dilatation of the superficial veins, abscess formation, and necrosis of the bone. The constitutional symptoms are shivering or rigor, high temperature—102° to 104°—rapid pulse, vomiting, headache, and convulsions. Death may occur in a short time unless the part is freely opened up and drained.

Necrosis is a result of suppurative inflammation of bone and its marrow and periosteum (see Periostitis, Peri-

odontitis), the most important example being "phossy jaw," the necrosis of the jaw-bone which occurs in match workers and others exposed to fumes of phosphorus, especially if they have carious teeth. It begins by an uneasy sensation in a tooth, with pain, worse at night or on pressure; the gums become œdematous, and the face may be red and swollen; the teeth are raised from their sockets and loosened; salivation occurs; mastication is difficult; the breath has the garlic odour of phosphorus-poisoning; the urine is albuminous, and may be phosphorescent. Abscesses form in the gum, and ultimately necrosis of the bone takes place. The preventive treatment is by the substitution of amorphous for yellow phosphorus in match-making, in thorough ventilation of workrooms, in greater cleanliness and care of teeth, in periodical examination of the teeth, and stopping or removing those that are carious. Any sinus that forms should be incised, and syringed out with corrosive sublimate solution. Small doses of turpentine and the inhalation of turpentine vapour have their advocates.

OTORRHAGIA.—Bleeding from the ear is one of the hæmorrhagic symptoms occasionally observed in purpura and in hysteria.

OTORRHŒA (Discharge from Ear).—See **Ear, Pain in.**

OVARIAN PAIN.—Pain, tenderness, and swelling of the ovary may be due to **acute** inflammation when the organ is movable; later, as the disease becomes **subacute** or **chronic,** the ovary gets adherent. When there is, in addition to swelling, exudation into the pelvis (suppuration), there is probably pyosalpinx.

Ovarian Tumour may at first cause pain, but when this ceases and the swelling increases, the existence of an ovarian tumour becomes probable. As the tumour rises out of the pelvis it can be felt as a rounded, movable,

fluctuating body, situated as a rule in front of the uterus, filling the hypogastric, umbilical, and iliac regions, sometimes also extending into the epigastrium and loins. Menstruation as a rule persists, but in young subjects a malignant ovarian tumour may be associated with amenorrhœa, so as to suggest pregnancy.

OXALURIA.—Oxalic acid is a normal constituent of the urine formed by the oxidation of uric acid. Its soda and potash salts are soluble, and cause no trouble; but in combination with lime, to which alone the term "oxaluria" is applied clinically, it is precipitated in octohedral, or more rarely dumb-bell-shaped or discoid, crystals, which may agglomerate and form a calculus in the kidney or bladder, with corresponding symptoms.

Large deposits of oxalate of lime crystals, forming a glittering fleecy cloud, are seen in neurasthenia or atonic dyspepsia, but a few such crystals are always to be found in a deposit of lithates (see Lithuria). Oxaluria is also commonly associated with diseases of the pancreas.

The urine in oxaluria is generally only faintly acid, as the acid phosphates of sodium, calcium and magnesium, especially the last, when present, enable the urine to hold the calcium in solution, and to their absence or insufficiency the precipitation, when it occurs, is due.

A large part of the urinary oxalate is derived from food, so that all green vegetables, garden rhubarb and tea, should be given up; no milk or eggs should be eaten. Potatoes, peas, onions, turnips, boiled rice, or hominy, may be used as vegetables; stewed apples, pears, peaches, or apricots may be taken as sweets; and any fish or meat may be eaten, except liver, sweetbread, and kidneys. The beverage should be coffee with cream, and salutaris or distilled water with a little whisky, if desired. After each meal the patient should take the following mixture: Dilute nitro-hydrochloric acid,

15 minims; solution of strychnine, 5 minims; juice of taraxacum, 1 drachm; distilled water to 1 ounce.

PAIN.—Painful sensations result from the excessive stimulation of the sensory nerves. The difficulty of definition is due to the fact that there is no sharp division between the stimuli that are pleasant and those that are painful; that the effect varies with individuals, with the same individual at different times, and, above all, with the *quantity* of the stimulus. We speak of one as "sensitive" who is disagreeably affected by a stimulus to which the average person is indifferent or finds pleasing.

Pain serves a useful purpose in protecting our tissues from danger. In thermal analgesia, seen in syringomyelia, a disease of the spinal cord, the patient does not feel heat, and consequently is liable to burn himself without being aware of it. One of my patients was employed in a rolling-mill, and his hands, arms, and shoulders were deeply scarred with the traces of burns he had unconsciously received. The extreme sensitiveness of the eye and ear, of the orifices of the alimentary canal, the urethra and genitals, depends upon their importance and the delicacy of their structure, but mainly on the fact that they are more or less exposed to external injury, and therefore need to be protected by this high degree of sensitiveness. The œsophagus or gullet is sensitive, but the stomach is not, and the internal viscera share in this want. Even the brain, when exposed, is not sensitive, and may be incised, or parts excised, without pain.

Pain is caused in the terminations of sensory nerves, and transmitted by these to the brain, where it is perceived. If the path of conduction is severed, no pain is felt. There is no special centre for pain, as distinguished from other sensory perceptions, but there is some dissociation between painful and common sensation, which can be demonstrated in certain pathological conditions,

but cannot be explained anatomically. Pain is caused in muscles by excessive strain, as in cramp or overdistension of hollow viscera, or by excess or defect of blood in a part. Anæmia or defect of blood is a common cause of neuralgia, hence the relief afforded by friction, stimulating applications, and galvanism. Brunton thinks pain in gout is increased by deficient alkalinity of the blood, while certain poisons—alcohol and arsenic, for example —cause pain by their action on nerve trunks. Conversely, sensitiveness to pain may be diminished by mental conditions, hypnotism, excitement, hysteria, insanity, or by drugs, by a strong electrical current, by extreme cold, or possibly by an effort of will.

Pain is not always referred to the part in which the stimulus is operating. Thus a decayed tooth may cause pain in the ear, or an inflamed appendix may give rise to pain in the epigastrium, disease of the hip-joint to pain in the knee, or an abscess of the liver to pain at the tip of the right shoulder. These *referred* pains are not in all cases capable of anatomical explanation.

The perception of pain is diminished in early infancy and in extreme old age; it is blunted in some individuals, especially in savages, and seems to be so, too, in women as compared with men.

Pain tends to increase the rate of the respirations and the pulse, and slightly raises the temperature. Excessive pain causes the severe depression of the nerve centres that is called "shock," marked by pallor, feeble pulse, faintness, loss of equilibrium or of consciousness; there may be nausea or vomiting, coldness of the extremities, and fall of temperature.

Relief of pain may be afforded by applying these principles, or, where it is impossible to remove the cause and so abolish the effect, by the use of analgesic drugs. **General anæsthesia** is produced by ether, chloroform, nitrous oxide gas, and other general anæsthetics. **Spinal**

anæsthesia suspends for a time the power of the spinal cord to transmit sensations, and is useful for operations on the pelvic organs and lower extremities. **Local anæsthesia** deprives a part of its sensibility, so that small operations can be performed without causing any pain.

Drugs that diminish or abolish pain are called **analgesics.** These have lately been much increased in number. Formerly the chief and only really efficient drug was opium or its alkaloids; now there is a whole series of coal-tar derivatives which are usefully employed for the purpose. They are free from the secondary ill-effects of opium, neither disturbing the functions of the secreting glands nor being liable to arouse a craving by their intoxicating effect. Alcohol possesses this analgesic power to some extent, and was at one time used a good deal for neuralgia, especially for pain connected with menstruation; but its dangers are so obvious and so generally recognized, that it ought not to be, and is rarely, prescribed at present. Aromatic spirit of ammonia as a domestic remedy has no doubt largely superseded brandy and sherry, but while it is much less likely to be abused, it is not altogether free from objection. Compared with it, the various proprietory pain-killers are welcome, but it is much to be desired that the recommendations of the Committee on Patent Medicines should be given the force of law.

Chronic pains are often treated most efficiently by derivation. The exact means by which these various agents act is not always clear, but of their efficiency there can be no doubt. Counter-irritation may be by friction with horsehair gloves, the application of a mustard plaster, painting with iodine, rubbing with capsicum paste or various stimulating embrocations, blistering with cantharides, or the use of the actual cautery. The local application of heat in the form of steam, hot water, hot sand, or hot air, or of cold by an ice-bag or compress

containing ice, or the local abstraction of blood by scarification, cupping (dry or wet), and leeching.

Each of the various methods of relieving pain has its appropriate sphere of usefulness, and will be found mentioned under the symptoms discussed in other parts of this book.

PALLOR.—Paleness of the skin of the face is in many people a natural condition, and even when extreme does not imply anæmia, as can be seen by examining the mucous surfaces, which are a good colour; yet this mistake is frequently made. It depends upon the presence of a thick layer of pigment cells, and is therefore only observed in dark persons. In anæmia the paleness of the skin is shared by that of the mucous membranes, and in chlorosis the pallor has the greenish tint which has led to its name. In the cachexia of malaria or in cancer the pallor is not clear, but dirty.

PARÆSTHESIA (see **Meralgia Paræsthetica, Pain**).—Abnormal sensations of a purely subjective kind, such as tingling, pricking, burning, creeping, and the like, are called "paræsthesiæ." They are common in alcoholism, in tabes dorsalis (locomotor ataxy), and in neurasthenia. In the last condition abnormal sensations which worry the patient a good deal may be felt in the nose, the pharynx, and the larynx. The patient imagines that he has swallowed a fishbone or a tooth-brush bristle, as he is tormented by a pricking sensation in the pharynx, or the base of the tongue, or the false vocal cords. When careful examination has shown the absolutely intact condition of the part complained of, and the patient has been reassured, a tonic should be given, such as the tincture of the perchloride of iron.

PARALYSIS.—Loss of the power of muscular movement, if complete, is called "paralysis"; if partial, is

often spoken of as "paresis." The term is qualified by words indicating its origin or its seat, but it is superseded by another series of words indicating this, such as "hemiplegia" for one-sided paralysis; "paraplegia" for paralysis of both lower extremities; "cerebral diplegia" for paralysis of both legs and perhaps of both arms, of cerebral origin; "ophthalmoplegia" for paralysis of the muscles of the eye.

PARALYSIS AGITANS (Shaking Palsy).—The symptoms of this disease, which has no known anatomical basis, are involuntary, but to some extent controllable, tremor, chiefly affecting the hands and forearms, with rigidity and some loss of voluntary power. It begins usually in one hand, and may affect the leg and foot on the same side; it then crosses to the opposite upper extremity. Its onset is gradual as a rule, and may be preceded by pains or cramps in the joints and limbs, with some sense of fatigue. Later on the body becomes bent forward, the legs adducted and flexed at the knees, the arms adducted and bent at the elbows, the fingers flexed and opposed to the thumbs; the face loses all expression; the mouth may be partly open, with dribbling of saliva. The gait becomes a trot, turning and stopping are effected with difficulty, so that the patient collides with doorposts or furniture, and if lightly pushed runs backward (retropulsion) or forward (propulsion). The voice becomes monotonous, the skin thickened and inelastic. There is a subjective sensation of internal heat. The muscles do not waste, the reflexes and sensation remain normal. As a rule, with the exception of restlessness and depression, the mental condition is normal, but in some cases there is loss of memory and gradual mental failure.

Treatment is hopeless as to cure, but tranquillity of body and mind, nervine sedatives, bromide of potassium,

and cannabis indica, with hot baths and massage, afford some alleviation of the patient's condition.

PARAPLEGIA.—Paralysis affecting the limbs on both sides of the body is called "paraplegia." It usually involves the lower extremities only, and is produced by diseases of the spinal cord or nerves. The most common cause of complete paraplegia is transverse myelitis, in which there is loss of motion and sensation in the parts below the lesion. The associated symptoms vary with the part of the cord attacked. If the lumbar enlargement is involved, there are loss of reflexes, paralysis of the sphincter muscles of the bladder and rectum, and rapid development of bedsores over the sacrum or buttocks. If the lesion is higher up, the reflexes are exaggerated, the sphincters are intact; but there is retention of urine, and bedsores are not formed so rapidly. Myelitis may occur after any infectious process, such, for example, as typhoid fever, the most common cause being syphilis; but antisyphilitic remedies are not so effective in this condition as in other syphilitic affections of the nervous system.

Alcoholic paraplegia is caused by a neuritis or inflammation of the nerves supplying the muscles of the lower limbs. In addition to the loss of power, there is pain, sometimes so acute that the patient cannot bear the weight of the bedclothes, and the calf muscles are tender when grasped; yet the patient may complain of the legs feeling numb, or of pricking sensations (paræsthesia) in them. The skin over the toes may be glossy, and the feet sweating. The reflexes, especially the knee-jerks, are abolished.

Paraplegia due to neuritis may be induced by the toxins of diseases (diphtheria, diabetes, beri-beri), or by such poisons as arsenic and bisulphide of carbon, the symptoms resembling in their main features those of alcoholic neuritis.

PAROTITIS.—Infective inflammation of the parotid gland occurs in epidemics from time to time, but sporadic cases are never altogether absent from our town populations. As one attack usually confers immunity for life, it is commonly seen in children; but adults, when attacked, suffer more severely. There have been a good many epidemics among conscripts in the French army. The disease is spread by contact, the incubation period being ten to twenty days. Preceded in some cases by headache and vomiting, one parotid becomes swollen, giving rise to some pain and feeling of tension, but the opposite gland soon shares in the process. The swelling is smooth, pale, and slightly tender; there may be dulness of hearing; the temperature may rise one or two degrees, rarely as high as 103°. There may be salivation or dryness of the mouth, and often difficulty in taking food and speaking, from inability to open the mouth. The disease may affect also the sublingual and submaxillary glands, and occasionally these may be alone affected, the parotid escaping. The cervical lymphatic glands are often swollen. The parotid swelling may become chronic, and persist for weeks or months. Exceptionally, the disease remains unilateral. The swelling lasts about a week, but after it has subsided metastasis may take place, with pain and swelling of the testicle, mamma, ovary, or pancreas. As a general rule the attack is mild and recovery complete, but complications may occur. The gland rarely suppurates or becomes gangrenous; cellulitis of the mouth and œdema glottidis, optic neuritis, otitis media, auditory nerve deafness, nephritis, arthritis, endocarditis, pneumonia, convulsions, meningitis, acute mania, and insanity, have been occasionally noted. Among persisting ill-effects are atrophy of the testicle and, when the auditory nerve has been affected, permanent deafness.

The treatment is rest in bed, isolation to prevent the

infection of others, hot or cold applications or a pad of cotton-wool and a bandage to relieve pain, or in some cases smearing with extract of belladonna and glycerine, or leeching. The diet must be simple, usually liquid, because of the difficulty of opening the mouth. The bowels should be moved by a dose of calomel; a simple saline mixture may be given, and tincture of belladonna may be added.

Parotitis may also occur as a complication in acute diseases, in pneumonia, typhoid, typhus, and yellow fevers, in cholera, also in pallagra, and occasionally the gland may be affected by syphilis or tuberculosis. It has been observed commonly after abdominal operations, but this has been traced to the custom of allowing no food by the mouth for several days, which appears to favour catarrhal infection of the duct.

PECTORILOQUY.—When the voice sounds are examined by listening with the stethoscope over the chest under normal conditions, they have a certain intensity and tone which the practitioner learns to recognize. If he listens over the trachea, he will notice a marked difference in both these points; over the normal chest a whisper is not audible, but can be heard over the trachea. When the lung is consolidated, a whisper can be heard, especially over the upper part of the chest, while the voice sounds are conducted loudly. This loud consonation of the voice sounds is usually spoken of as "bronchophony," while the conduction of the whisper is called "whispering pectoriloquy."

PELIOSIS RHEUMATICA (Purpura).—After the subsidence of the articular pain and swelling in acute rheumatism, and especially if the patient gets up, a crop of red spots appears over the legs and feet. These spots do not disappear on pressure, and are the consequence of cutaneous hæmorrhages. They disappear in the course of a few

days when the patient remains in bed, but they are apt to recur on getting up. The condition is of no importance, and requires no special treatment except rest.

PELLAGRA (Maidismus).—This word of Italian origin means "rough skin," but it refers to an endemic disease affecting the skin, digestive system, spinal cord, and brain, observed in people whose diet is composed mainly of maize or spoiled maize. It is common in Italy and Egypt, has been lately not infrequent in the United States, and a few cases have occurred in Scotland. Its relation to maize has been disputed, and a rival theory has been suggested that it is due to the bites of a fly (*Simulium*) found near running water. In a recent analysis of the facts relating to this disease in the island of Antigua, where pellagra is endemic, it has been shown that the *Simulium* does not exist there; that there is little running water; that all the cases occur among the poor blacks, whose diet is exclusively maize, meal, and salt fish; that the whites, who eat maize meal, together with a liberal and varied diet, never suffer. As where blacks and whites live under identical conditions, the whites suffer more than the blacks, there is evidently no racial immunity. It is probable that the disease is caused by a deficient diet, when this consists mainly of maize meal.

The premonitory symptoms are headache, depression, vertigo, cramps, dyspepsia, and denudation of the tongue. These are followed by erythema of the backs of the hands and forearms, the insteps and knees, occurring chiefly in the spring, when the violet rays of the sun are most abundant. The erythema is accompanied by itching, burning, and œdema. After three or four attacks in successive springs, the skin becomes dry, wrinkled, scaly, and pigmented. There is tenderness over the middle of the dorsal spine, which disappears after a few weeks; but later there is complaint of fresh tenderness on both sides

of the dorsal and lumbar spine, and the patient gets gradually weaker. Mental symptoms then commence to show themselves—insomnia, impaired mentality, excitability, moroseness, melancholy, delusions, dementia and perhaps epilepsy. The knee-jerks are exaggerated and ankle clonus, with other signs of spastic paraplegia, develop. The skin and muscles become atrophied. Ultimately the knee-jerks are lost. Ptosis and other eye affections may appear. Control over the bladder is retained. Finally, the case becomes bedridden, and usually dies in a lunatic asylum.

The prognosis is not unfavourable if the case is recognized early and treated by generous diet, from which maize is excluded. Obstinate diarrhœa, persistent insomnia, great emaciation and the supervention of tubercle, are unfavourable signs. The treatment recommended is by fresh air, rest, baths, liberal diet excluding maize, and the use of strychnine and arsenic.

PEMPHIGUS.—Pemphigus is the name given to many forms of bullous eruption, possibly connected only by the form of the lesion. The disease begins by crops of vesicles or bullæ, the size of half a pea to half a damson, containing at first clear fluid, which later becomes turbid or occasionally blood-stained. When they burst, they leave a red, weeping surface that usually heals, but successive crops may appear. There may be slight soreness or burning, less often itching, but in severe cases the pain may be so great as to cause loss of sleep and exhaustion. The onset in mild cases is without fever, and insidious; but it may be sudden, with shivering and fever, and later there may be albuminuria or actual nephritis, gastro-enteritis, and septic poisoning.

Pemphigus Vulgaris may be mild or severe. Each crop lasts seven to ten days, and successive crops may extend over a couple of months or several years. It may attack

the mucous membrane of the mouth, vagina, or conjunctiva, in the last case often doing permanent damage from adhesions, entropion, and trichiasis. The sores may become diphtheritic or gangrenous.

Pemphigus Acutus Malignus generally attacks butchers. There is usually a history of a wound. Fever, albuminuria, and exhaustion, are common, and the disease is generally fatal.

Pemphigus Neonatorum appears soon after birth, and lasts from one to eight weeks. It is not syphilitic, and the sores heal quickly.

Pemphigus Foliaceus may be primary or follow pemphigus vulgaris. The bullæ are flaccid, and form scales. The sores may become infected, and be followed by boils and abscesses, with foul stench and loss of hair and nails. If the mucous membrane of the mouth is attacked, there may be dysphagia. There may be much pain, with fever, insomnia, anorexia, emaciation, and death from exhaustion.

Pemphigus Vegetans begins in a crop of small vesicles in the axillæ, the folds of the thighs, and about the genitals. It spreads serpiginously, gives rise to moist, warty growths and foul discharge. It may involve the mouth, nose, and pharynx, cause loss of hair and nails, and prove fatal from exhaustion, septic poisoning, or nephritis.

The treatment of the local condition in all these forms is by strict cleanliness, mild antiseptics, protection by Lassar's paste, or a dusting-powder of zinc and French chalk; the patient may need a water-bed, and should in all cases receive a liberal diet, with arsenic in full doses. Opium and quinine are useful to allay pain, procure sleep, and maintain appetite.

Epidermolysis Bullosa Hereditaria, or family pemphigus, is a condition that may affect several members of a family, showing itself soon after birth, the epidermis coming away

on the slightest friction, or bullæ form from any pressure. The sores heal quickly, but there is a risk of contiguous surfaces adhering and forming webs between the fingers and toes. The mucous membranes may share in the condition. The nails are destroyed, and the teeth are lost early. Treatment appears to be hopeless, but there is a slight prospect that the case may improve with time. Adhesions should be prevented, protection afforded as far as possible, and the food should be bland and of moderate temperature.

Tropical Pemphigus is an acute, contagious, bullous, or vesicular eruption met with throughout the tropics, but especially in China, Japan and the Straits. It begins as minute red spots, which itch and burn, form vesicles and bullæ containing fluid, and leave red, weeping surfaces when they burst. In its treatment its contagious character must not be lost sight of, and due precautions taken to isolate the patient and disinfect or destroy clothing and dressing. The eruption should be dressed with lotions, ointment, or dusting-powder containing antiseptics.

PENTOSURIA.—A harmless abnormality of the urine likely to be mistaken for diabetes is pentosuria. It is generally discovered by accident in the routine examination of the urine for some reason, as it gives rise to no symptoms, but reduces Fehling's solution and blackens with bismuth (Nylander). It forms an osazone, but does not ferment. The test for it is Bial's orcin reagent carefully prepared. Pentosuria tends to run in families, affects males more than females, and has not been shown to be congenital, as the youngest recorded case was a boy of fifteen. It is very rare. Jews show some special liability to it. Although arabinose (pentose) is a common constituent of fruit, and alimentary pentosuria must be admitted to be possible, large quantities of plums and

cherries can be eaten without causing any appearance in the urine that can be detected by ordinary tests; but pentosuria has followed the use of very large amounts (1 litre) of the unfermented fruit-juice sold on the Continent as a beverage.

PEPTONURIA (see **Albumosuria**).—Peptone is occasionally present in the urine, but has no known pathological significance. It is generally met with in the albuminuria of febrile diseases, or in Bright's disease complicated by fever. It gives the biuret reaction, or a pink colour with Fehling's solution in the cold; but in order to exclude albumose, the urine should be precipitated by saturation with ammonium sulphate, and filtered before being tested. It is quite probable that the presence of peptone is due to changes that take place in the albumin after it has been excreted from the kidney.

PERFORATING ULCER.—In certain diseases of the brain and cord, notably in paralytic dementia, tabes dorsalis, syringomyelia, or of the nerves, in alcoholic or diabetic neuritis or beriberi, a callosity forms, usually on the sole of the foot over the head of the first metatarsal bone. In the centre of this a small opening appears, through which pus is discharged. The ulcer is quite painless. A probe passes deeply, often reaching dead bone or the cavity of the joint. It shows no tendency to heal so long as the patient walks about, but it often heals while the patient is in hospital. If there is any necrosed bone, this must be removed. The relation to pressure is the rule, but it is said occasionally to have occurred in parts where pressure was not obvious.

PERIODONTITIS (see **Pyorrhœa**).—Inflammation of the dense fibrous structure of the gum may be acute or chronic. The symptoms in the acute form are severe pain, swelling, and the formation of abscess (gum-boil);

in the chronic form pain is present, but less severe; atrophy of the gum, further exposure of the roots, and loosening of the teeth result. In the former case, cleansing out and filling the cavities, if done in good time, will stop the process; but when an abscess has formed, the tooth at fault must be removed. In the chronic form, painting with iodine will temporarily allay the pain and dispel the inflammation; but the disease is apt to recur, and by loosening the teeth, renders them useless, so that they must be removed.

PERIOSTITIS.—Inflammation of the membrane that covers the bone may be part of an osteitis or osteomyelitis, but it occurs in convalescence from typhoid fever and in secondary syphilis (*q.v.*), causing oval, painful swellings on the bones. The typhoid nodes are caused by the *Bacillus typhosus*, and generally resolve without suppurating, but sometimes an abscess results. On the other hand, syphilitic nodes in this stage always disappear, unless there is some septic infection complicating the disease.

PERITONITIS. — Inflammation of the peritoneum, which lines the abdominal cavity, and is reflected over the surface of the chief abdominal organs, may be local or general. It is usually secondary to inflammation or ulceration of an abdominal organ, and is at first localized, but may extend and become generalized. The symptoms are pain, hardening of the abdominal muscles over the inflamed area, tenderness, rapid pulse, a rise of temperature, which is variable in amount, and not always present. In general peritonitis, the constitutional symptoms are distension of the abdomen, hiccough, vomiting, constipation, dry tongue, insomnia, delirium, or coma. The pulse becomes small and weak, and death results, unless prompt surgical interference can remove the cause.

PHAGEDÆNA.—Rapidly spreading infective sloughing of the soft tissues is called "phagedæna." In the pre-antiseptic days it was common in hospital practice, but is now rare, although it has made its appearance among the wounded in the war.

Tropical phagedæna is common in the tropics among the carriers of exploring parties, and was formerly rife among the African slave-gangs. Its cause seems to be the infection of originally trifling injuries of the legs and feet in men who are debilitated from want of food, overwork, and bad sanitary conditions; but it is more common in unhealthy, damp jungle near the coast or the shores of rivers, while it is rare in high and dry country. The affection begins as a boggy swelling, on which blebs form filled with bloody serum. When these burst, a grey slough is exposed, which spreads rapidly, destroying all the soft parts. The sores are painful and foul, while the general symptoms are severe. Death may result from septicæmia, while, if recovery takes place, much deformity and large scars remain.

The treatment of phagedæna involves free removal of the sloughs by curetting or the actual cautery. The fresh surfaces should be treated with solution of iodine or carbolic acid. Opium may be needed for pain, and quinine as a tonic. To prevent tropical phagedæna, the legs and feet should be protected, and wounds cared for. Those attacked should be isolated. The diet should be abundant, and include fresh vegetables or fruit-juice.

PHANTOM TUMOUR.—There are two kinds of phantom tumour. In the first there is general abdominal swelling, resonant on percussion, due to relaxed muscular walls of the abdomen and intestine, usually with only subjective or imaginary fœtal movements, more rarely with enlargement of the breasts, morning sickness, and amenorrhœa. It generally occurs in women near the

menopause, or in those recently married. In the second the centre of the abdomen is occupied by a spasmodic or semi-voluntary contraction of the abdominal rectus muscles, or portions of them. This is more or less dull on percussion, disappearing if palpated with the patient prone on her face. In both cases the tumour disappears under complete general anæsthesia, but may return. The treatment requires chiefly tact.

PHIMOSIS.—The prepuce may be elongated, contracted, and sometimes adherent to the glans, so that it cannot be retracted. It may be congenital or acquired, in consequence of inflammation or repeated attacks of herpes, or temporarily in consequence of inflammatory or œdematous swelling. The congenital condition is one of the causes of nocturnal enuresis (*q.v.*), and a very small preputial opening may cause general anasarca (see Dropsy).

PHLEBITIS.—Inflammation of veins may result from injury, the spread of inflammation from neighbouring parts, or infection in general diseases after childbirth.

The symptoms are local pain, hardening and tenderness, with œdema. The pain is sometimes slight, while the œdema may be marked, as in the phlebitis that follows typhoid fever. There is always danger of embolism (*q.v.*) from the clot that forms in the vein becoming partially detached, and passing into the circulation, so that absolute rest is imperative; but the vein remains obstructed for many months, and may remain so permanently.

PHOBIAS AND MANIAS.—There is a whole series of nervous repulsions or longings which are not inconsistent with sanity in the broad sense, and are often seen in persons who are only nervous or neurotic.

Acrophobia is the dread of heights (see Vertigo), marked by giddiness on being in such a position.

Batophobia is the dread of low situations, such as going down a lift or a mine-shaft.

Acromania, or **Batomania,** is the impulse to precipitate oneself from a height.

Agoraphobia is the dread of open spaces (see Vertigo), in which the sufferer turns giddy in trying to walk across a large empty room or an open square.

Claustrophobia (see Vertigo) is the dread of closed places, such persons insisting on sitting in rooms with the door open, and are uncomfortable in a closed carriage.

Dipsophobia is a fanatical dread of intoxicating drinks, while **Dipsomania** (*q.v.*) is the uncontrollable impulse to take intoxicants.

Gynephobia and **Androphobia** are the dread of the opposite sex, not very uncommon in nervous young people of both sexes.

Satyriasis, or **Nymphomania,** is the opposite tendency, rarely but occasionally met with in the sane.

Hydrophobia.—See **Rabies.**

Kleptophobia is the dread of stealing, also rarely compatible with sanity; but the impulse to steal, **Kleptomania,** appears to be not uncommon in the sane.

Pyrophobia is the dread of fire, while **Pyromania,** or the impulse to destroy by fire, is seen in **insanity** and hysteria.

Syphilophobia is the dread of syphilis, which, with or without reason, is an obsession with some unfortunate patients.

Pediculophobia is an obsession that they have lice about them, and nothing can sometimes persuade them to the contrary.

Pathophobia is the dread of diseases, carried to such an extreme as to be evidence of insanity.

PHOSPHATURIA.—Phosphates of the alkalies and alkaline earths are normal constituents of the urine, and their precipitation is due not to their presence in excess, but to alkalinity of the urine. If the degree of acidity is only just sufficient to keep them in solution, they may come down on boiling, forming a white cloud, which clears up on the addition of a few drops of acid. If the urine is actually alkaline, the urine when passed may be more or less white and opaque, the phosphates soon settling to form a dense white precipitate, which under the microscope consists of amorphous granules; but in a short time crystals of triple phosphate (ammonium magnesium phosphate), the common knife-rest crystals, form from them.

Animal diet increases the amount of phosphates; they are increased, too, in diabetes, but diminished in fevers and in nephritis. Their alleged increase in diseases of the nervous system has not been confirmed by recent researches. The appearance of a phosphatic cloud on boiling, or the milkiness of the urine already described, is not of serious importance, being commonly seen in atonic dyspepsia, and should be treated by giving 15 drops of dilute nitrohydrochloric acid after each meal.

Neutral phosphates may form an iridescent film on the surface of the urine after it has stood; this appearance is without pathological significance.

Acid calcium phosphate may deposit from the urine in stars (stellar phosphate) or slender colourless rods. The urine is often clear, pale, of high specific gravity, and is sometimes associated with constitutional symptoms, great nervous irritability, dyspepsia, wasting, pain in the back and loins. Such cases have been known to develop into saccharine or insipid diabetes, sometimes into pulmonary phthisis. This condition has been called "phosphatic diabetes"; it is not common, and is not well understood.

Urine which has become alkaline from ammoniacal decomposition always deposits crystals of triple phosphates; it may occur in the bladder from infective cystitis, but is more commonly seen in urine that has been allowed to stand for some time after it has been passed. Alkaline decomposition is favoured by the presence of mucus, and may begin in a mucous deposit, with formation of triple phosphate crystals, while the upper part of the fluid still shows an acid reaction to litmus-paper.

PIGEON OR CHICKEN BREAST.—This deformity is the result of rickets. The sternum is thrust forward, the thorax is compressed laterally, the spine may be curved, and the clavicles bent. Considerable improvement may be effected by persevering with judiciously planned exercises, if these are undertaken during early boyhood, before the skeleton has undergone full development and ossification is completed.

PIGMENTATION OF THE SKIN.—The development of pigment in the skin, especially in exposed parts of the body, is a symptom calculated to arrest attention, but it occurs under so many conditions that its significance requires careful analysis.

The formation of pigment in the skin is held to be a reversion to an ancestral dark-skinned type. The pigment is called "melanin," and consists largely of carbon. It is probably derived from the hæmoglobin of the blood, but is formed by the skin epithelium, which in Addison's disease, where the exposed parts become dark brown, appears to act in a complementary fashion to the chromaffin cells of the suprarenal bodies that are incapacitated by disease. All asthenic conditions are accompanied by pigmentation.

We may classify it as—(1) Hyperæmic or post-inflammatory; (2) toxæmic; (3) nervous; (4) neoplastic; (5) parasitic; (6) metallic.

Hyperæmic or post-inflammatory pigmentation is seen in sunburn, in the darkening from the pressure of garters and waistbands, in the irregular patches on the face and neck seen in Graves's disease, in the marks of mustard-plasters and blisters, in the marks of scratches, or around ulcers and pustules in the skin.

Toxæmic pigmentation occurs in pregnancy, disease of the suprarenal capsules, rheumatoid arthritis, oral sepsis, pellagra, syphilis, leprosy, tuberculosis, malaria, diabetes, senility, and alcoholism.

Nervous pigmentation may happen after great emotional strain, as in the remarkable case of the lady condemned to death in the French Revolution, who turned "as black as a moderately dark negro" in the course of a few days. The pigmentation of chorea, epilepsy, hysteria (under the eyes), and leucoderma, where the pigment is concentrated around the white patches, are other examples.

Neoplastic pigmentation is found in moles, pigmented nævi, melanotic sarcoma, xeroderma pigmentosum, and acanthosis nigricans.

Parasitic pigmentation is caused by the growth of various fungi in or on the epidermis, of which the commonest example is *Pityriasis versicolor*, often seen on the chest and back, due to the growth of *Tinea versicolor*. Erythrasma affecting the axillæ and groins is caused by the *Microsporon minutissimum*. *Otomycosis aspergillina* is a black fungus that grows in the external auditory meatus. Chromidrosis and seborrhœa nigricans are other examples of parasitic pigmentation.

Pinta is a very curious parasitic disease met with in Mexico, Brazil, and Central America. It is caused by a penicillium fungus. The spots, which may coalesce, are variously coloured—blue, black, red, and white—hence the name "pinta" (painted). It is accompanied by intolerable itching.

Metallic pigmentation is due in the case of argyria to the deposit of silver in the skin. This used to be more common when nitrate of silver was given for epilepsy, but it is said also to have been caused by the prolonged application of nitrate of silver to the throat.

The prolonged use of arsenic causes marked darkening of the skin, apparently from stimulation of the pigment-forming processes in the skin epithelium. It disappears gradually when the use of the drug is stopped, but the blackening of argyria is permanent.

Pigmentation of the skin occurs also in **bronzed diabetes,** a disease in which enlargement of the liver is associated with glycosuria and pigmentation of the skin, especially over the face, neck, hands, and axillæ. The disease is regarded as a hæmochromatosis, in which there is destruction of the red cells of the blood, with deposit of blood pigment, leading to cirrhosis of the liver and pancreas, the affection of the latter organ resulting in diabetes.

Xeroderma Pigmentosa is a rare progressive affection of the skin, beginning in the first or second year of life, and apparently bearing some relation to a purulent conjunctivitis. The freckle-like spots cover the face and other parts of the body, especially the legs below the knees. The spots are pale yellow, and surrounded by dilated capillaries; later small warts form among the spots. The capillaries disappear, leaving atrophic scars; superficial ulcers form, which are covered with scabs, and from these or from the warts epitheliomatous lesions arise. The treatment is unsuccessful, but the conjunctivitis should be allayed by bathing with antiseptic lotion, and removal of the warts and spots may be attempted by curetting or scraping.

PITMEN'S RASHES. — Coal-miners are subject to various skin diseases, of which, perhaps, the most serious

is **creosote rash,** from handling timber-props pickled in creosote. The rash begins as an eruption of small papules, passing into vesicles and pustules, chiefly on the hands, wrists, face, and neck. The rash may be accompanied by shivering, headaches, loss of appetite, vomiting, and a rise of temperature to 101° or 102°. Conjunctivitis may result if the man rubs his eyes with dirty hands. The treatment recommended is bathing the parts with solution of salicylate of soda (2 per cent.) night and morning, followed by the application of boric acid ointment. **Water rash** is similar, and appears to be caused by the water in the pit; but the rash may simulate smallpox, as some of the pustules are distinctly umbilicated. The patient should be confined to bed on light diet, and given a diaphoretic and diuretic mixture of liquor ammoniæ acetatis, spirit of nitrous ether, and acetate of potash. **Eczema** may attack the arms and legs as a sequel to the foregoing, causing severe dermatitis, with loss of epidermis, and the formation of deep fissures that cause much pain. The disease is very intractable. The treatment involves discontinuance of work for a time, the parts to be covered by gelatine zinc or zinc plaster. **Sweat rashes** are of an erythematous or papular type. A strong dose of calomel is recommended, but rough underclothing should be discarded, and linen or cotton worn next the skin. Acetate of lead lotion or hazeline snow (B. W. and Co.) may be used to relieve the irritation.

PLAGUE.—The great plague, which has been so destructive on various occasions, exists endemically in certain parts of Arabia, Persia, Mesopotamia, China, India, and Siberia. The specific contagion is the *Bacillus pestis*. There is reason to believe that it is a disease of rats and of a Siberian marmot. From these animals it is communicated to man by fleas, which are carriers of the bacillus. In its commonest and least virulent form, the

bubonic plague, it is mainly communicated by inoculation, through abrasions or the bites of insects; but when the bacillus is abundant, it may be acquired by inhalation. The bacillus may be carried in infected clothing, carpets, or rags. Winter seems to be the season that favours the epidemic, but the conditions under which great epidemics arise are unknown.

The symptoms of bubonic plague are, after two to five days' incubation, a sudden rise of temperature, preceded, perhaps, by a rigor or convulsion, headache, nausea, or vomiting and vague pains. There is great prostration, with tenderness over the lymphatic glands, usually in the groin, giddiness, pains in the head, back, and limbs, flushing of the face, injection of the conjunctivæ, rapid pulse and respiration, coated tongue, insomnia, and delirium. The glandular swelling increases, there is œdema of the surrounding skin, hæmorrhages occur into the skin, and the patient may become comatose. The buboes may resolve or suppurate in the second week, leaving troublesome sinuses, or may slough, forming large ulcers that heal slowly. The temperature may fall suddenly on the second day of the disease, but usually reascends, to fall again by lysis between the fifth and seventh day, but in fatal cases it may rise to 108°, or even 110°.

Various types of plague are described, but in practice they are much mixed. The **septicæmic** type is rapidly fatal without external buboes; its onset is sudden, with prostration, delirium, and coma, weak irregular pulse, hyperpyrexia, and bleeding from mucous surfaces. The *Bacillus pestis* can be found in a blood-culture. The **pneumonic** type is also very fatal; it is marked by dyspnœa, cough, and expectoration, but the physical signs of pneumonia are obscure. **Rusty sputum** is seldom seen, but the expectoration may be copious and almost pure blood. The existence of an **intestinal** form, with vomiting,

diarrhœa, and bloody mucous stools without external buboes, is doubtful. The **ambulatory** form is only mild plague, with slight constitutional disturbance.

The treatment is symptomatic and expectant, but a number of curative and prophylactic sera have been tried. Of these, Haffkine's preventive inoculation has gained the confidence of the Indian Medical Service as being harmless, capable of aborting an attack if given during the incubation period, and affording powerful protection against attacks, or rendering them milder if they occur.

PLETHORA (see **Polycythæmia**).—The ordinary meaning attached to plethora is full-blooded, and this is popularly associated with a well-nourished body, ruddy complexion, vigorous pulse, and active digestion. A more scientific definition is based on the examination of the blood, which would show a normal or maximum number of red blood-corpuscles and a full amount of hæmoglobin.

Venous Plethora implies merely distension of the great veins in the neck.

PLEURISY.—See **Pain in Chest.**

PLEURODYNIA.—See **Pain in Chest.**

PLEUROTHOTONOS.—When in convulsions, such as occur in tetanus, hysteria, or strychnine-poisoning, the body is drawn sideways by a tonic contraction, the condition is called "pleurothotonos."

PNEUMATURIA.—The presence of gas in freshly passed urine is probably always due to the fermentation of sugar from the presence of yeast cells. Almost all the cases recorded have been in diabetes, and where, exceptionally, no sugar was found, this may have been destroyed by the fermentation.

PNEUMONIA.—See **Pain in Chest.**

PNEUMOPERICARDIUM.—Gas may be found in the pericardium post mortem as the result of putrefaction, or air may enter through a puncture; and if the pericardium is adherent, more air is drawn in by suction when the sternum is raised. Air may enter during life by means of an external wound, a fractured rib, or by ulcerative perforation from the alimentary canal or the lungs. The symptoms are disappearance of the cardiac dulness, which is replaced by a tympanitic note, and the heart sounds have an amphoric character. If there is any effusion, metallic tinkling and splashing may be heard. The condition under which such an accident as ulcerative perforation may happen may preclude any operation, but incision and drainage afford the best, if not the only, chance of a cure. Air entering by a clean wound may do no harm, and be absorbed.

POLYCYTHÆMIA (Erythræmia).—Since blood-counting has become a recognized part of clinical examination, it has been discovered that the number of red cells in a cubic millimetre of blood may be greatly increased in consequence of some agency which stimulates the blood-forming tissues to react vigorously. The simplest condition is cyanosis from heart or lung disease, where there is stasis of the circulation in the peripheral parts. The number of red cells under these conditions may rise from the normal 5,000,000 or 6,000,000 to 8,000,000 or 9,000,000.

But in addition to these examples there is a form that has been called **polycythæmia vera,** as it is not secondary to any heart or lung disease. Its symptoms are—(1) Plethora; (2) splenomegaly; and (3) erythræmia. These patients complain of headache, vertigo, fulness in the head, paroxysmal dyspnœa, pain over the spleen, and sometimes of bleeding from the gums or other mucous surfaces. The blood-pressure is high, the superficial

veins are dilated, and the heart may be hypertrophied. Albuminuria is common. The face, ears, and hands, and sometimes the body, are reddened, or in cold weather cyanosed, the redness being shared by the retinæ, conjunctivæ, and tongue. The spleen is moderately enlarged, but may reach to the umbilicus; the liver is also generally somewhat increased in size. The blood shows an average increase of red cells to 8,900,000, but may reach 13,000,000. The percentage of hæmoglobin is under 1—that is, it is not increased in proportion to the number of red cells. The leucocytes average 14,250, the polymorphs forming 70 per cent.

These cases last many years, and they undergo remissions. Treatment seems of little use, except that by occasional venesection.

The cause is obscure, the generally accepted view being that it is a primary over-activity of the bone-marrow; but as cyanosis in heart and lung disease is capable of stimulating this action, and as in this condition there is undoubted stasis in the peripheral circulation, we should seek the cause of the stasis if we desire to find an explanation. In some cases the splenic vein has been found thrombosed, but this would appear to be a consequence, and not a cause.

POLYURIA.—An increased quantity of urine is a symptom of many conditions—in hysteria, tubercular disease of the kidney, where it may precede all other symptoms; in chronic contracting kidney, in which frequent nocturnal micturition often attracts attention or will be found on inquiry to have existed before any other trouble has arisen—in movable kidney, in intermittent hydronephrosis, in traumatic acute nephritis, after Edebohl's operation of stripping the renal capsule, in pregnancy, in cerebral tumour, in association with oculo-motor paralysis from a lesion in the region of the

nuclei, in cerebral tumour, and in diabetes mellitus and insipidus.

Diabetes mellitus has been briefly described under Glycosuria (*q.v.*).

Diabetes Insipidus is defined as an excessive flow of urine free from sugar and albumin, with constant thirst. It occurs more frequently in childhood and early manhood up to middle age, but it may be congenital. It is at times distinctly hereditary; in one family twenty persons out of ninety-one in the course of four generations were affected (Weil's case).

The symptoms may come on gradually or suddenly after shock or injury. The quantity of urine may be very large, 20 to 60 pints; specific gravity, 1,001 to 1,005. Micturition is frequent. The total solids are normal or increased, except where the kidneys have become disorganized. Thirst is constant. Polyphagia is uncommon, but occurs at times. The skin is dry, and may be the seat of boils, or œdema of the feet may supervene in the later stages. All the secretions are usually scanty, but salivation has been described (Kuelz). Both great tolerance and great intolerance of alcohol have been noticed. Insomnia may be present.

The alleged causes are numerous. In India there is a transitory form that attacks children after exposure to hot sun. Syphilis is an undoubted cause, even unassociated with other indications of syphilitic brain disease. Injuries to the head, shock, acute infections—*e.g.*, influenza, intemperance, and pregnancy—are more or less well-established causes. Cases have been observed where the disease recurred with each pregnancy, and disappeared during the intervals.

The prognosis mainly depends upon the existence of renal complications. It is otherwise consistent with longevity, but the amount of urea should be estimated,

as if this is below 300 grains the prognosis is doubtful, if below 200 grains it is grave.

Treatment is unsatisfactory. Hot baths and inunction of the skin with oil relieve its dryness. Ergot and valerian are the two drugs chiefly recommended, but they cannot be relied upon. The patient should be urged to allay thirst by such expedients as sucking pieces of lemon, and to drink small quantities at a time; but forcible limitation of liquids is cruel.

PORGES-MEIER REACTION.—This is a simplification of the Wassermann reaction (*q.v.*). Equal parts of suspected blood-serum and a 1 per cent. emulsion of lecithin in normal saline are allowed to stand at the temperature of the room for five hours. If the serum is syphilitic, the emulsion is precipitated, while with normal serum the result is negative.

PRESBYOPIA.—After forty years of age, the range of accommodation for the eyes gradually diminishes, so that as a rule by forty-five spectacles are necessary to permit of vision at such a distance as is convenient for reading. This lengthening of the near point is called "presbyopia." Those who have been myopic—that is, have had the near point abnormally close in the earlier part of their lives—do not become presbyopic, but as age advances are able to discard their glasses and can read small print, and do fine work at what may be called "normal distances."

PRIAPISM.—Persistent erection of the penis occurs in injury to or affections of the spinal cord, in rabies, in prostatic enlargement, stone in bladder, and cantharides-poisoning. It may be attended by pain.

PROGERIA.—See **Dwarfism.**

PRUNE-JUICE EXPECTORATION.—The sputum in pneumonia is characteristically coloured red or rusty by

admixture with the red exudation poured into the air vesicles of the lung in the process of consolidation. The red colour is due to the presence of oxyhæmoglobin, or a combination of the hæmoglobin of the blood-corpuscles with the atmospheric oxygen, for which its affinity is so strong that venous blood which has lost its oxygen soon turns red when exposed to the air, as in venesection. In unfavourable cases of pneumonia the expectoration, instead of being red or rusty, has this prune-juice or purple colour of met-hæmoglobin, indicating that the hæmoglobin of the exudation has lost its power of taking up oxygen. It is not known to what this change is due, but the unfavourable significance of the symptom is generally admitted.

This prune-juice expectoration is also seen in malignant disease and gangrene of the lung.

PTOSIS.—Drooping of the eyelids is often associated with mental deficiency (*q.v.*), when it is bilateral. Unilateral ptosis is the result of paralysis of the third nerve from injury, migraine, cerebral syphilis, or meningitis.

PTYALISM.—An excessive secretion of saliva is called "ptyalism." Under physiological conditions the secretion of saliva is provoked by irritating the orifices of the salivary ducts, by suggesting the idea of food, or by mastication. Putting pebbles in the mouth and chewing them is an expedient used to relieve thirst. Smoking or chewing tobacco provokes the flow. Small doses of pilocarpine (jaborandi) stimulate the secretion, and in mercurial poisoning "salivation" is a characteristic symptom. Ptyalism occurs also in the uræmia of Bright's disease, and sometimes in pregnancy.

PUBERTY (see **Menstruation, Cough**).—The reproductive organs attain to potential activity usually at the age of fourteen or fifteen, but for the next ten years the body

continues to develop—a process which can only be hindered by the exercise of their function. In girls the occurrence of puberty and its symptoms are discussed under **Menstruation.** In boys the larynx enlarges, causing the voice to become lower in tone and temporarily hoarse. Sometimes there is a cough, hair begins to grow on the face and body, the sebaceous glands become active, leading often to an eruption of **acne** on the face and shoulders. In healthy boys the body should gain in strength, but it is disadvantageous if growth takes place rapidly at this age, the result being seen in relative incapacity for mental and physical exertion. Epilepsy and migraine may show themselves, and girls tend to become anæmic.

The proper treatment for both sexes at this period is a healthy active life, with plenty of good food, outdoor games, and regular occupation.

PULSATION, PULSE.—The **cardiac impulse** is felt normally in the arteries (see Radial Pulse) wherever these are accessible to the finger, and over the apex-beat of the heart in the precordia. **Inflammation,** being attended by increased flow of blood to the part, is often accompanied by pulsation or throbbing, a subjective sensation being experienced at times in inflamed parts, which may not be accessible to palpation. **Epigastric** pulsation may be caused by dilatation of the right side of the heart, or by the aorta in anæmia and neurasthenia (see Pulsating Aorta). **Aneurisms,** if within reach, cause pulsation, which is expansile. It may be felt in the episternal notch, or in the first and second right intercostal spaces, or wherever the aneurism comes near the surface. Pulsation of the **retinal vessels** may be seen with the ophthalmoscope in disease of the aortic valves, or in inflammatory conditions in the orbit. **Venous** pulsation may be seen and felt in the neck when the tricuspid valve is incompetent. **Capillary** pulsation, a symptom of aortic

regurgitation, is visible in the nails when these are compressed, or in the lips if pressed with a cover-glass, or in the forehead if the skin is rubbed vigorously until a red mark is left. The **thyroid gland** pulsates in **exophthalmic goitre** (*q.v.*), the **liver** pulsates in heart disease with tricuspid incompetence.

In certain persons of spare habit, nervous constitution, or when suffering from neurasthenia, the abdominal aorta may pulsate so strongly as to suggest an abdominal aneurism. Less marked degrees are met with in chlorotic anæmia. Episternal pulsation, when the aortic impulse can be felt in the neck behind the notch of the manubrium, indicates dilatation of the aortic arch. Epigastric pulsation is seen normally after violent exertion, but otherwise points to dilatation of the right side of the heart. Pulsating liver is caused by tricuspid incompetence, so that the systolic impulse of the right ventricle is transmitted backwards through the inferior vena cava and the hepatic vein to the liver.

As a matter of convenience, the pulsation of the radial artery as it passes over the lower end of the radius at the wrist is used for examining the state of the pulse. The points to be determined are—(1) The state of the arterial wall; (2) the rate or the number of beats per minute; (3) the rhythm; (4) the celerity or quickness with which the impulse strikes the finger; (5) the volume or extent to which the stream of blood distends the vessel; (6) the tension or force with which the stream is maintained; (7) the presence or absence of dicrotism.

The wall of the artery may be thickened by arteriosclerosis, by atheroma, or by calcification. The muscular wall may undergo a considerable amount of thickening, or the intima become the seat of inflammatory changes, with secondary deposits of lime salts (atheroma). These changes are usually met with in old age, but they may be

prematurely present in consequence of syphilis or alcoholism (see Arterio-Sclerosis).

The rate of the pulse is measured by the number of beats per minute, the average pulse in adult life being between 70 and 80. In some persons the pulse is always slow—50, for example. It is normally quicker in infancy, up to the age of five is generally over 100, and up to puberty ranges up to 90. The pulse in women is on an average seven beats quicker than in men of the same age. Rapid action of the heart is an indication of weakness, and a pulse habitually 100 or more suggests latent valvular disease, or some constitutional defect. Very rapid action of the heart, or **tachycardia,** occurs after influenza, in exophthalmic goitre, in neurasthenia, and other diseases. It may be caused by alcohol, tobacco, coffee, or tea. The pulse-rate may be uncountable. **Bradycardia,** or slow heart, occurs as the result of influenza, jaundice, lead-poisoning, meningitis, apoplexy, and as an essential sign of " heart-block " (see Syncope).

The **rhythm** refers only to the regularity of the intervals between the beats. Occasionally the pulse may intermit, even in health, in consequence of slight gastric disturbance, or even as a habit, which appears to be perfectly consistent with an intact condition of the heart and vessels and prolonged life. Irregularity is met with commonly after influenza, coming and going, sometimes under the influence of exertion, sometimes in consequence of digestion or indigestion, or by the use of alcohol. It is commonly met with in disease of the mitral valve, and in pericarditis; also in meningitis, cerebral hæmorrhage, and injuries to the head.

The pulse is sometimes described as **quick** or **sluggish,** not in relation to its rate, but to the sharpness with which it strikes the finger. These variations are met with in acute diseases.

The pulse is described as **full** when the artery appears

well filled, as in health, or **small,** in debility or from relative weakness. It is sometimes described as **thready,** when it is feeble, small, and flickering, as in great prostration, or as **wiry,** being small and hard, in peritonitis. The **paradoxical pulse** becomes very feeble or imperceptible during inspiration, as in pericardial effusion. In the **pulsus alternans** two large beats are followed by small ones, the rhythm being quite regular, and in a variety of this condition, called **pulsus bigeminus,** both the large and small beats occur in couples. These conditions are the result of impaired contractility of the left ventricle.

A great deal of attention has of recent years been paid to the **pressure** of the pulse. Pulses are spoken of as soft, compressible, or of low tension, or as hard, incompressible, and of high tension. The former condition is met with in health, at rest, and may be increased by debility or weakness from any cause. The pressure of the pulse is raised by exertion, a full meal, and especially by chronic Bright's disease, where it probably reaches the maximum. The pulse-pressure is now measured by a mercury manometer, the normal pressure being 120 to 130 millimetres. As age advances, the reading is usually found to be 150 to 160, but in chronic Bright's disease it rises to 200, and may be much higher. Thickening of the wall of the vessel interferes with the accuracy of these readings (see Arterio-Sclerosis).

Dicrotism originally meant the sensation of two beats for each systole, but since the introduction of pulse-tracings it has been applied to those which show an exaggerated dicrotic notch, the bottom of which may approach the base-line. If this reaches below the base-line, the pulse is called **hyperdicrotic.** Moderate degrees of dicrotism are met with in anæmia and in fever, but the extreme degree is in fever accompanied by severe toxæmia. A condition somewhat resembling hyperdicrotism is **Corrigan's pulse,** or the collapsing pulse of aortic regurgita-

tion. The pulse is usually about 100, quick, with a large up-stroke, the dicrotic notch falling down to or below the base-line. It is sometimes also called the "splashing" or "collapsing" pulse, and is the pulse of unfilled arteries.

PUPIL.—The pupils are dilated in weakness from shock or loss of blood, from double atrophy of the optic nerves, and from belladonna, atropine, and other poisons. They are contracted from compression of the brain, from meningitis, typhus fever, syphilis, opium, and other poisons. In these conditions the alteration is bilateral.

Unilateral **dilatation** of the pupil occurs in paralysis of the third nerve from cycloplegia (see Ophthalmoplegia), in cerebral hæmorrhage, in irritation of the cervical sympathetic caused by the pressure of an aneurism or growth, or from belladonna, atropine, or cocaine applied to one eye. **Contraction** may follow paralysis of the cervical sympathetic, or the instillation of eserine.

Inequality of the pupils is seen in meningitis, cerebral hæmorrhage, migraine, and injuries to the head.

Irregularity of the outline of the pupil is common in paralytic dementia, in other chronic diseases of the brain, and as a result of adhesions from iritis.

Wernicke's Hemiopic Pupil reacts only when the light falls on the sensitive half of the retina, but the reaction occurs in both eyes. The localizing value of this sign is disputed.

Loss of the Light Reflex, or the Argyll-Robertson pupil, is named after the well-known Edinburgh ophthalmic surgeon who described it. It is met with as an early symptom in tabes dorsalis (locomotor ataxy), and in general paralysis of the insane (paralytic dementia). It consists in loss of the normal reflex, contraction of the pupil when exposed to light. The patient should be placed so as to face the light with both eyes closed, and

kept closed for about a minute, when the observer gently raises one eyelid and notices whether the pupil contracts on exposure to the light. The observation should be repeated with the other eye if the first gives indefinite results, but both eyes must not be exposed at the same moment, and the light must not be near the eye, as in that case the patient may accommodate to look at the near object, and contraction take place, for the power of contraction during accommodation is not lost.

PURPURA.—Hæmorrhages into the skin, causing **petechiæ** or **ecchymoses,** occur in all septic conditions, in many acute fevers, in scurvy, in acute rheumatism (see Peliosis Rheumatica); but where there is no obvious primary condition, the disease is called **purpura.** If the only symptom is the presence of punctiform spots, red, purple, or black, with a few small ecchymoses, it is called **purpura simplex;** but if accompanied by hæmorrhages from mucous surfaces, nose, gums, alimentary canal, or urinary tract, it is called **purpura hæmorrhagica** (see Werlhof's Disease). The cause of the disease is obscure, and its clinical course is variable, some cases being very rebellious to all forms of treatment, and proving fatal; while others, in spite of free hæmorrhage, do very well. The prognosis of purpura simplex is good, but it may be the beginning of purpura hæmorrhagica, so that at first there should be some reserve.

PYORRHŒA ALVEOLARIS.—This is a too common affection of the teeth supervening about middle age, or later, and leading to their loss by loosening. It is an acute or chronic suppuration attacking the margins of the gums, and causing their progressive necrosis, exposing the roots of the teeth. There may be little to be seen beyond recession of the edge of the gum, with exposure of the root, unprotected by enamel; but in severe cases there is congestion of the margin, from which fœtid pus

exudes. The disease is attributed to neglect of oral cleanliness, to feeble health from constitutional diseases; it is especially common in diabetes, but occurs in persons who present none of these conditions. It leads to loosening and loss of the teeth. Where there is marked suppuration, it is a source of general sepsis or toxæmia, and is rightly regarded as a frequent cause of rheumatoid arthritis and toxæmic disorders. From its effects on mastication it induces ulcer of the stomach and other digestive troubles.

Treatment is not very satisfactory, some authorities regarding extraction as the only trustworthy remedy; but this heroic measure is generally postponed until a trial has been given to local applications of iodine, peroxide of hydrogen, sulphate of copper, and similar antiseptic remedies, by a qualified dentist.

Where undoubted signs of general toxæmia (sepsis) are present, extraction of all affected teeth should not be postponed; but there has been too much haste to extract sound teeth in rheumatoid affections under the assumption that they are attributable to dental conditions, although the teeth appear sound.

QUINQUAUD'S SIGN.—This is a form of tremor elicited by allowing the tips of the patient's fingers to rest lightly in an attitude of semiflexion, as in playing the piano, on the palm of the observer's hand, or on the top of a thin wooden box. Crepitation may be felt in the former case, or heard by the stethoscope applied to the box in the latter. It was formerly claimed to be a sign of alcoholism, and is so if well marked, while its absence excludes this condition; but slight degrees are present in moderate drinkers and in tabes dorsalis.

QUINSY (Tonsillitis).—Tonsillitis is divided into catarrhal, lacunar, and parenchymatous, some restricting the term "quinsy" to the last, where there is suppuration

or the formation of an abscess; but there is no real distinction between them. The constitutional symptoms are severe for a disease which almost invariably runs a favourable course. It begins more or less suddenly with chilliness or shivering, difficulty in swallowing and speaking, rapid pulse, rise of temperature to 101° or 104°, prostration, constipation, furred tongue, and loaded urine. One or both tonsils may be swollen, and usually show points of yellowish-white exudation protruding from the orifices of the crypts. When an abscess forms, the soft palate is stretched over the swollen tonsil, causing pronounced dysphagia even in swallowing saliva.

The treatment is by more or less continuous inhalation of steam from a Maw's inhaler. Order a teaspoonful of Jephson's powder* every hour until the bowels are fully moved; a mixture of tincture of the perchloride of iron 10 minims, chlorate of potassium 5 grains, glycerine 20 minims, water 1 ounce, every four hours. Diet: milk, bread and milk, jelly, ice-cream, or ice to suck.

If the soft palate bulges, a free incision with a bistoury should be made without delay, entering the knife in the most prominent part of the swelling, and cutting straight down.

As the presence of the Klebs-Loeffler bacillus would modify the outlook, it is desirable to have a bacteriological examination made early in all cases when diphtheria (*q.v.*) is prevalent.

RABIES.—Rabies is a most virulent infectious disease communicated by inoculation or the bite of a rabid animal. The domestic animal most often attacked is the dog, the cat rarely, but even sheep, goats, horses, and pigs occasionally; of wild animals, the wolf, fox, hyena, and jackal. Men are bitten more often than

* Jephson's powder: powdered guaiacum ½ ounce, precipitated sulphur 1 ounce.

women ; about one-third of the bites are followed by infection, bites on exposed parts, especially the face, being the most dangerous. The **incubation** period varies; in children, if bitten about the face, it is fifty to sixty days. It may be as short as seven days, or as long as twenty-seven months; but the usual time is from two to six months. The **premonitory** symptoms are itching and pain at the seat of the bite, shivering, anæsthesia, paræsthesia, local paralysis, and fibrillary twitching. The **prodromal** period is marked by mental depression, nightmare, sighing, insomnia, suicidal impulses, and constriction of the thorax. Its duration may be two or three days, or several weeks. The period of **excitement** begins by irritability, exaggeration of reflexes, cardiac dyspnœa, laryngeal and pharyngeal spasms rendering drinking impossible, and even the sight of water, or the sound of liquid being poured out (hydrophobia) may bring them on; but sometimes the patient can drink in the dark or be able to suck pieces of ice. Even a current of air, a bright light, or some smells, may induce a spasm. Hallucinations of sight and hearing occur; the convulsions increase in frequency and violence, resembling epilepsy or tetanus; suffocation may be imminent, or the patient may develop furious mania or frenzies of passion, screaming, biting the bedclothes, and knocking himself against the wall. These attacks last fifteen or twenty minutes, and are followed by exhaustion and mental depression. The patient rarely sleeps, and longs for death. The urine may contain albumin, hæmoglobin, and sugar. Vomiting of bile and blood, and agonizing seminal emissions, may occur. The temperature rises even as high as 109°, and may continue after death. The pulse is rapid and intermittent, and death may result from asphyxia. The final or **paralytic** stage lasts only a few hours; it is marked by unconsciousness, collapse, and death. The furious stage may sometimes be absent, the symptoms being only

acute local pains, mental depression, and paralysis. The disease is almost always fatal. The bite should be treated by the actual cautery, and preventive inoculation commenced as soon as possible, as it is useless after symptoms have begun, although intravenous injections of the antitoxin may be tried. The symptoms may be palliated by absolute quiet, exclusion of light, baths of hot water or steam, opium, chloral, and chloroform.

RAILWAY SPINE (see **Neurasthenia**).—This is an obsolete term formerly applied to the varied nervous symptoms resulting from shock in railway accidents, which were at that time ascribed to spinal concussion.

RANULA.—All cystic tumours of the floor of the mouth originating in the salivary glands are called "ranula." They are classified as sublingual, submental, and congenital. The last is the simplest, being due to imperforate Wharton's duct, and curable by snipping off the end of the papilla.

Sublingual ranula is a tense, bluish, shiny swelling on one side of the tongue, pushing it up and interfering with mastication; the mucous membrane is not adherent; the cyst contains mucus, without any amylolytic ferment or sulphocyanide of potassium.

The **Submental** variety forms a soft, fluctuating swelling below the chin; it grows slowly, and gives rise to few symptoms. The treatment in both cases must be surgical.

RAYNAUD'S DISEASE.—See **Local Syncope.**

REACTION OF DEGENERATION (Electrical Reactions).—When stimulated with the faradic current, a muscle responds so long as its motor nerve is intact. If this is injured, poisoned, or inflamed, the reaction is lost in a day or two, but returns as the nerve recovers. When

stimulated by the galvanic current, muscle responds so long as any fibres remain capable of contraction; but differences have been noted in response to the two poles, which afford some diagnostic information. Under normal conditions, the contraction that follows the closure of the current when the cathode is applied to the muscle is greater than in the case of the anode. This is expressed by KCC>ACC; but when the nerve is degenerated, the response is slow, and ACC>KCC. This is termed the "reaction of degeneration." It is met with in various diseases of the spinal cord and peripheral nerves.

RECTAL ATRESIA.—Narrowing of the rectum may be congenital, or the result of ulceration of any kind, or of chronic inflammation caused by long-continued use of enemata, or of bruising in childbirth. The passage may be obstructed by external pressure from a vaginal pessary, vesical calculus, malignant disease of the prostate, abscess of the pelvic bones or hip-joint, retroverted uterus, or cancer, or fibroid tumour, ectopic pregnancy, salpingitis, appendicitis, or overloaded sigmoid or cæcum.

REDUPLICATION OF HEART SOUNDS.—Under normal conditions the two sides of the heart beat synchronously, and only two sounds are audible; but when the synchronism is upset, there may be reduplication of the first or second sounds, or both. The causes of this change are many, alterations of pressure in the pulmonary or systemic circulation affecting mainly the second sound, while variations in the muscular power of either ventricle may delay or accelerate the production of one component part of the first sound.

REFLEX, GORDON'S PARADOX FLEXOR.— Like Babinsky's sign (*q.v.*), Gordon's reflex is a symptom of disease of the pyramidal tracts. It is elicited by pressure on the middle and lower thirds of the calf muscles, the

knee being flexed and the foot resting on a low stool; when present, the reflex consists of extension of the great toe. It is said never to occur in health.

REGURGITATION.—See **Eructation.**

RETROPULSION, PROPULSION.—See **Paralysis Agitans.**

RHEUMATISM.—By rheumatism we mean a painful affection of the fibrous tissues in joints, muscles, and membranes. It may be acute or chronic.

Acute Rheumatism is an acute polyarthritis occurring chiefly in early life, affecting both sexes; there is a racial or family predisposition; it is more common in town populations, and is favoured by abundant animal food. One attack confers no immunity, but shows predisposition. Its proximate cause is infection by diplococci, which may gain access by the tonsils; but exposure to cold and wet play a not unimportant part. Its incubation period is indefinite or unknown. Its onset may be preceded by sore throat, muscular weakness, shifting pains, and prostration; then arthritis develops in one or more joints, most frequently in the knee; the joint or joints affected are swollen, painful, tender, and may show a red blush. The temperature rises to about 102°; there is usually profuse sour sweating; the tongue is coated; the bowels are confined; the urine is diminished in quantity, high-coloured, and loaded with urates; the heart's impulse is diffused, and a soft, systolic murmur may be audible. The course of the disease is indefinite, but it usually lasts three weeks. Convalescence is slow, the muscles and joints remain weak, and there is marked anæmia.

The prognosis is good as to recovery; hyperpyrexia and severe pericarditis are the most unfavourable complications. The sequelæ most to be feared are affections of the valves of the heart from endocarditis, this being more

probable the younger the patient; but pleurisy, pneumonia, chorea in children, phlebitis, and neuritis, are frequently seen. Subcutaneous nodules (*q.v.*), peliosis rheumatica (*q.v.*), erythema nodosum, and other skin affections, may follow. The treatment is rest in bed between the blankets in a flannel nightdress; the affected joints should be wrapped in cotton-wool and bandaged; milk and farinaceous diet, with fruit if desired; alkaline drinks, soda-water or Vichy water, and salicin or salicylates. The relief of pain afforded by salicylate treatment is undoubted, but as this remedy has no power of preventing the heart affection or other complications, its specific influence is doubtful. It is best to give 10 grains of salicylate of soda every hour until the pains are relieved, which usually means six or eight doses; then to continue the dose every two hours for the remainder of the first twenty-four hours; if the patient is going on well, it will be sufficient to repeat it every four hours until convalescence, but the patient should keep his bed at least for a fortnight. Relapses may occur, and second and third attacks are common.

Chronic Rheumatism may be the consequence of an acute attack, or may begin insidiously with no such history; it may take the form of recurring arthritis, or muscular pains, or stiffness of joints with muscular weakness. While some cases are truly rheumatic, others are pneumococcal or gonococcal.

RHINORRHŒA.—There are at least two well-defined conditions in which there is a profuse watery discharge from the nose, distinguished by the fluid in only one of them containing mucin, and consequently stiffening linen. The non-mucinous variety has been described under Hydrocephalus (*q.v.*) as the only symptom in some cases where the escape of the fluid, troublesome and disagreeable as it is, prevents more serious consequences of the

blocking of the foramina of Magendie and Luschka. After injury to the base of the skull, cerebro-spinal fluid may escape down one or both nostrils, and this discharge may be intermittent, and be associated with other symptoms of injury or disease of the brain.

The mucinous form is a profuse watery discharge, without visible change in the nasal mucous membrane; it occurs in adults, more often in women than men, and may be associated with eye-strain; it shows itself in persons whose mucous membranes are sensitive to dust and pollen; it comes on in the morning on waking, or as soon as the blinds are drawn up, the discharge being sufficient to soak two or three handkerchiefs, which become stiff when dry from the mucin. This infirmity is very persistent, but may be palliated by adrenalin sprays, by the internal use of belladonna or atropine.

RICKETS.—A chronic disease, beginning usually between the ages of six months and two years, causing enlargements of the epiphyses, deformities of bone, alterations of ligaments and muscles, and changes in internal organs. It is more common in our cities than in the country; in industrial Europe and America than in agricultural India, China, and Japan. It is caused chiefly by the artificial feeding of infants. Its early symptoms are indigestion, restlessness, broken sleep, night-sweats, and miliary rash; the bones of the skull become thin and soft (craniotabes); the frontal and parietal eminences are prominent; teething is delayed; convulsions and laryngismus stridulus may occur. The results are large, square head, stunted and deformed limbs, rounded prominences where the ribs join the costal cartilages (rickety rosary), and curved spine (see Genu Valgum, Coxa Vara, Kyphosis, Dwarfism). **Late rickets** may be a relapse or a primary condition. It comes on before puberty, the symptoms being fatigue, sweating, nervousness, and enlargement of

epiphyses. In all cases the diet must be regulated, and cod-liver oil added; a plentiful supply of fresh air and sunshine should be secured, best in an open-air hospital.

RIGOR.—The term "rigor" is applied (not very appropriately) to a paroxysm induced (1) by cold, (2) by the distension of certain canals (the passage of biliary or renal calculi or a catheter), and (3) by the action of the toxins of certain diseases. In diseases a rigor may be initial, as in pneumonia, influenza, ague, sepsis, typhoid fever (rare), or may recur in the course of them. In children rigors are replaced by vomiting or convulsions.

A rigor commences by a feeling of chilliness; sometimes this is preceded by yawning (in ague); there may be a feeling as of cold water running down the spine; the surface of the body becomes cold; the finger-tips, nose, and face generally are shrunken and blue; the teeth chatter; horripilation and cutis anserina (goose-flesh) are often present. The cold stage may be succeeded by burning heat, and this terminated by profuse sweating.

The mechanism of a rigor is not fully understood, but it is probable that it is reflex and solely vasomotor when there is a mechanical cause like the passage of a catheter or gall-stone, as it is not then accompanied by fever; but it is central when it is due to the toxins of disease, which affect the heat centre as well as the vasomotor system.

Its significance varies with circumstances. In health, when accompanied by a rise of temperature, it points to the onset of some acute disease; with pain, but without fever, to the passage of a calculus; in septic diseases, to the development of a fresh focus of infection; in enlarged prostate, to infection of the bladder; with brain symptoms, to a cerebral abscess.

A shudder is a small rigor, and this may be psychical or even physiological, as from disgust or cold.

During the cold stage of rigor, heat to the surface and hot drinks give much relief.

RINGWORM (Tinea Tonsurans, Kerion).—A fungus disease of the hair, especially of the scalp, causing bald patches in which the hair is represented by stumps. The disease is usually caused by the *Microsporon audouini*, less commonly by the *Trichophyton megalosporon*. It usually affects children; it is contagious, and tends to spread in schools. It may give rise to no symptoms except a bald patch, showing no sign of irritation. The stumps are thicker than normal hairs, whitish, opaque, and stand up about $\frac{1}{6}$ inch above the surface. They can be pulled out easily with a pair of forceps, and if put on a slide with a few drops of liquor potassæ, the fungus can be seen with a low-power (100 diameters) microscope. Megalosporon is only responsible for about 4 per cent. of all cases; the patch may be quite bare, smooth, or reddened, but may suppurate, becoming raised, boggy, and exuding thick sero-pus when pressed (kerion); this generally cures the patch. The disease in inveterate cases has been very obstinate, but the X rays appear to be most successful, and have now superseded other methods, although an early case may still be cured by painting with iodine or the application of white precipitate ointment (ung. hydrarg. ammon., B.P.).

Tropical Ringworm (dhobie itch) has many names, and is common in tropical countries, but should not be confounded with simple intertrigo. It usually attacks the insides of the thighs, the scrotum, and the axillæ; it causes a good deal of itching, and forms dull red patches, with raised margins, and pale, slightly scaly centres. They tend to get better in the cold weather, and worse in hot; they may form vesicles or pustules at the margins. In the tropics the disease may be very obstinate, but disappears quickly on coming home. The treatment must

be cleanliness and the use of chrysarobin dissolved in solution of guttapercha, 20 grains to the ounce, painted over the patches.

RISUS SARDONICUS.—This is the involuntary drawing down of the angle of the mouth so as to cause a deep furrow on each side leading from the ala of the nose. It is seen in peritonitis, severe ulceration of the bowels, malignant disease of the abdomen, but also in tetanus and hysteria.

RODENT ULCER.—A slowly progressive malignant ulcer of the skin, which may form in any part, but is usually on the face in the inner angle between the nose and the orbit. It appears first as a small nodule below the epidermis, but causes slight itching and redness; in this stage it may last some years, but finally breaks down into an ulcer, with smooth, raised, rounded edges; this ulcer makes steady progress, destroying all the tissues that it invades. There seems to be no doubt that occasionally rodent ulcer takes its origin in a degenerated mole. It is of importance that the ulcer should be recognized early, and the treatment is its excision or destruction by CO_2 snow, or potassa fusa.

ROMBERG'S SYMPTOM.—In tabes dorsalis (*q.v.*) the patient is unable to stand without swaying or falling if he closes his eyes and places his feet together. This symptom is often manifested to the patient by his falling forward when sponging or washing his face.

ROSACEA.—See **Seborrhœa.**

SALAAM CONVULSION (**Eclampsia Nutans**) (see **Nodding Spasm**).—This is a peculiar epileptiform convulsion, in which, without loss of consciousness, there is a paroxysm of bowing movements, the whole body and head being bent forward twenty to one hundred times in succession. The intervals between the attacks may be

several days. It always begins before puberty, but at first may be only nodding of the head, and seem to be an exaggeration of nodding spasm (*q.v.*). Later there may be regular epileptiform attacks, paralysis, hemiplegia, paraplegia, with pronounced mental alteration. Slow recovery is possible. The treatment should be by a course of bromides, as for epilepsy (see Convulsion).

SALIVATION.—See **Ptyalism.**

SALPINGITIS.—Inflammation starting from the Fallopian tubes is commonly of gonorrhœal origin. It causes local pain, often difficulty in walking, tenderness on palpation in the groin or *per vaginam*, and, by setting up adhesions, may be a cause of dysmenorrhœa and of sterility. The condition is probably incurable, the functions of the tubes cannot be restored, and their diseased condition renders them a danger to present and future health, so that the most satisfactory treatment is their removal by abdominal section.

SATYRIASIS (see **Phobias and Manias**).—Excessive and uncontrolled sexual excitement in the male.

SCHMIDT'S TEST.—This is a test for determining the presence of altered or unaltered bile pigment in the fæces. To perform it, about as much fæcal matter as will lie on the point of a spatula is rubbed up with water and placed in a wide test-tube or beaker, four or five times its volume of saturated solution of corrosive sublimate being added to it, and the mixture well stirred. This should be allowed to stand for twelve hours, and at the end of that time normal fæces will be coloured a bright red (hydro-bilirubin); but if unchanged bile pigment is present, a green colour (bilirubin) is developed; or if there is no bile present, there is no colour change, when the reaction is negative. The last result is commonly met with in the summer diarrhœa of children; but under

treatment the bile returns, and the reaction is positive. If there should be no return as the result of treatment, the prognosis is held to be most unfavourable (see Diarrhœa).

SCIATICA.—The sciatic nerve, which runs down the back of the thigh, lying deeply between the muscles, may be the seat of obstinate neuralgia, the pain radiating into the branches of the nerve round the hip or down the leg as far as the heel; the muscles may be wasted and contracted. The immediate cause is often an injury, or sitting on a hard, wet or cold seat, the predisposition being the gouty or rheumatic constitution.

The treatment should be a sharp purge—*e.g.*, a drop of croton oil diluted with glycerine, the local application of heat or the constant current, the hot Droitwich brine douche, acupuncture, rubbing with methyl salicylate ointment, the internal use of acetanilide, or one of its allies. Sweet wines and malt liquors should be given up.

SCISSOR-LEG DEFORMITY.—Infantile paralysis, cerebral diplegia and spastic paraplegia, may cause such extreme adduction of the legs that in walking they are crossed, to which the name of "scissor-leg deformity" has been given. By transplantation of tendons much has been done of recent years to remedy deformities of this kind.

SCLEREMA NEONATORUM.—Induration of the skin in the newly-born is rare in this country, but is more common in France and Italy. It stands in close relation to debility, unfavourable surroundings, and coldness of the weather. It appears a few days after birth, with coldness of the surface, lowering of the rectal temperature, and induration of the skin. The temperature may be as low as 95° F.; the skin cannot be pinched up—it is smooth, firm, elastic, and does not pit on pressure; its

colour is pink, dusky red, or may be icteric. The induration begins in the back, later involving the face and anterior surface; it may remain localized or become practically universal, the child's body becoming completely rigid. About half the cases die, more favourable indications being limitation of the induration, moderate lowering of the temperature, a well-nourished, robust state of the infant, and absence of pulmonary or digestive derangement. The treatment is by putting the child in an incubator, rubbing it over with warm oil, giving it small doses of camphorated oil (10 per cent.) hypodermically (1 or 2 minims every hour), and feeding it with warm milk and water, a few drops of brandy being added to each teaspoonful.

SCLERODERMA (see **Morphœa**).—Induration of the skin may occur in two forms—either (1) diffuse symmetrical, or (2) circumscribed. The latter is called **morphœa** (*q.v.*). The **diffuse symmetrical** type is rare. It begins usually in early youth, but not in infancy, and is not to be confounded with sclerema neonatorum (*q.v.*). It starts subacutely or gradually, and may be preceded by tingling and pain in the joints. The skin feels stiff, is slightly œdematous, but gradually becomes hard and immovable, so that it cannot be pinched up. The distribution of the lesion is symmetrical, and usually involves the face, neck, upper extremities and upper part of the trunk, occasionally the lower extremities also. The affected skin undergoes contraction in places, flexing or fixing joints, everting the eyelids, puckering the lips, retracting the gums and interfering with deglutition and respiration. The skin affection may be accompanied by mental depression, induced by the progressive character of the disease and the ineffectiveness of remedies, but partial recovery is possible, especially from the earlier œdematous stage.

SCOLIOSIS (Lateral Curvature).—Lateral curvature of the spine is due to weakness or overaction of the muscles on one side of the body. It may be caused by any employment or exercise which involves the exclusive or excessive use of one arm, as at tennis, and it is apt to occur in growing boys and girls. It may be cured by appropriate exercises to counteract the deformity, but mechanical supports should not be used.

After empyema, pleurisy, or collapse of one lung from any cause, scoliosis may result.

SEA-SICKNESS.—Vomiting caused by the motion of a vessel at sea.

A similar condition is not very rarely observed in children, produced by riding in a train or carriage or from the movement of a swing. It depends upon the functions of the semicircular canals, and is strictly analogous to the vertigo and vomiting met with in disease of these structures, but its precise mechanism is not accurately known. As a rule the movement of the ship is tolerated after a few days so long as it keeps about the same; but the sickness may return if the sea becomes rougher, and even some seasoned sailors are liable to the recurrence of sea-sickness in very bad weather, as is said of Lord Nelson. The majority of children are liable to sea-sickness, and so are many women, but as age advances immunity becomes the rule in both sexes.

The treatment that is usually quite efficient for a short crossing is to take a dose of some hypnotic about half an hour before going on board, and when on the ship to lie down and try to get to sleep before she leaves the harbour. For this purpose 20 grains of chloral hydrate, or 7 grains of veronal, or 5 grains of chloretone, may be taken in a capsule. The first is the most certain to induce sleep, but all are usually efficient in preventing sickness.

In longer voyages the patient should be advised to

stay in bed for two or three days, and if the nausea persists to take nothing but a little good champagne and dry biscuits. When food can be taken, the patient should be persuaded to dress and sit on deck daily, when in most cases recovery takes place.

This is not always the result, and the gravest exhaustion or death itself may be the consequence of intractable vomiting, but it is very rare. Chloretone should be given daily, and the patient fed carefully with champagne, clear soup, and such light food as the stomach will retain. Bromide of potassium is useful in nervous cases, especially where there is mental distress and apprehension.

Before the voyage it is desirable to correct any digestive derangement, and to clear out the bowels by a grain or two of calomel. Some persons are not sick when at sea, but suffer from vertigo and nausea for twenty-four hours or more after landing. For this trouble time is a certain remedy, and if the first day on shore has to be spent in bed, no great hardship is suffered. The Liverpool hotels owe a good deal to this peculiar result of a sea voyage.

SEBORRHŒA (see **Alopecia, Acne**).—The sebaceous glands under certain conditions are stimulated to excessive secretion, which may be more fluid than normal, causing seborrhœa, of which the most notable result when it attacks the scalp is alopecia (*q.v.*).

Acne (*q.v.*) is caused by plugging of the gland ducts and rosacea by chronic hyperæmia of the glands of the nose and cheeks. This is usually attributed to digestive disturbance or alcoholism, but it has a close relation to badly ventilated rooms, like many law-courts, the presence of excess of CO_2 in the air causing flushing of the face. The treatment is by fresh air, washing with Hebra's spirit soap, or the use of an ointment containing ½ drachm each of precipitated sulphur and salicylic acid to 1 ounce of unguentum aquæ rosarum.

SEMINAL EMISSIONS.—These are only abnormal when they are unduly frequent or occur without orgasm. They may be induced by local causes, such as phimosis, prostatitis, or parasites. The general cause is neurasthenia from sexual excess, especially by masturbation. The symptoms are cold, clammy hands, unduly bright eyes, depression, dyspepsia, lassitude, and backache. The treatment should be by an active, outdoor life, gymnastic exercises, a cold morning bath, avoidance of alcohol, laxatives if needed, 10 or 15 grains of bromide of potassium at bedtime, giving up the habit of masturbation, and avoiding all causes of sexual excitement.

SEPSIS, SAPRÆMIA, SEPTICÆMIA, PYÆMIA.—These are different degrees of sepsis, **sapræmia** being that caused by absorption of toxins from a local focus of disease, as in diphtheria. In **septicæmia** the blood contains the living microbes, and in **pyæmia** the microbes cause septic embolisms and the formation of abscesses. The symptoms of sepsis are chilliness, prostration, fever, headache, furred tongue, loss of appetite, constipation, diminished urine, with dry or clammy skin. In sapræmia the symptoms develop rapidly, the temperature rises to 103° or 104°, and is more or less continued. In pyæmia it is remittent or intermittent, with rigor, sweating, anæmia, loss of flesh, jaundice, insomnia, and delirium. In septicæmia and pyæmia blood culture should demonstrate the presence of the microbe. The treatment should be by clearing out the focus of disease and administering an antitoxic serum or autogenous vaccine.

SHOCK (see **Syncope**).—This is the arrest or suspension of some of the functions of the nervous system in consequence of a profound impression made through the special senses or common sensation or the sympathetic system. The effect depends upon the inherent vigour of the subject and the attention paid to the impression, while it

may be diminished or altogether prevented by general or local anæsthesia, or by the insensibility produced by alcohol or opium. The symptoms are faintness, pallor, rapid pulse, low temperature, and cold perspiration; the sphincters may be paralyzed. Death may result, but recovery is the rule. Any urgent matter, such as arrest of bleeding, should be attended to, and then we should secure rest, quiet, and warmth, perform artificial respiration if needed, and give stimulants if the pulse keeps feeble, especially by the hypodermic injection of 10 minims of camphorated oil (10 per cent.) or the transfusion of normal saline solution.

SIGHING.—This is a sudden involuntary deep inspiration succeeded by more or less audible expiration. It is usually regarded as an expression of a depressing emotion, but in disease it is observed as one of the prodromata of tubercular meningitis, in anæmia of the brain associated with pallor and faintness, and in heart disease, where it has long been popularly regarded as a symptom of fatty heart; but it may be observed in cardiac irregularity from gastric disturbance.

SKODAIC RESONANCE. — When the air-containing space on one side of the thorax is reduced in size, the percussion note over it rises in pitch, so as almost to sound dull in comparison with the opposite side. It is present over the upper part of the chest in pleuritic effusion, and was first noticed by Skoda, an eminent Viennese physician in the middle of the nineteenth century.

SLEEPLESSNESS.—Inability to sleep at night may be conveniently divided into two classes: (1) Inability to get to sleep where there is no feeling of drowsiness, and the patient lies awake hour after hour without any heaviness of the eyelids or blunting of the senses. Hearing is often abnormally acute, and he is almost painfully

aware of all that is taking place in his neighbourhood: he hears the clock ticking, the mouse gnawing in the wainscot, and in the early morning the birds cheeping in their nests. Meanwhile, if he has a comfortable bed, he lies quietly, not restlessly turning from side to side. (2) In the second class he falls asleep soon after getting to bed, and sleeps for an hour or two, then wakes feeling uncomfortable, turns uneasily from side to side, fidgets, throws off the clothes, gets up and walks about, then returns to bed, and finally after a longer or shorter time drops off to sleep again.

The first is nervous insomnia, which is by far the more serious; the second is visceral, and most commonly gastric in its origin.

Nervous insomnia results from overwork, worry, or from the effect of some poison on the nervous system, such as tea, coffee, or tobacco. It may be the prelude to grave brain trouble, for insanity is often preceded by a period of sleeplessness.

Some persons of nervous temperament are habitually bad sleepers, and any unusual excitement may involve a sleepless night.

Pain may, of course, prevent sleep, but it is a common result of any general infective process apart altogether from pain to interfere with sleep.

Those who are liable to suffer from nervous insomnia should as far as possible shun working late, and when it is impossible to escape this, they should take some light warm food before going to bed, avoiding tea, coffee, and tobacco late at night. Alcohol often affords the necessary stimulus, but should not be recommended except as an occasional help under unusual circumstances. The practice of taking a " night-cap " of spirits is bad for the stomach, and sooner or later shows its ill effects. Persistent nervous insomnia is a danger-signal. The mind becomes unbalanced, the power of judgment is impaired,

causes of worry assume unreal proportions, and suicide may result from inability to see things in their proper relations. There may be a mental breakdown or a neurasthenic collapse, involving inability to work and needing prolonged rest. Every means should be employed to secure sleep in these cases. If there are cold feet, a hot bottle must be put in the bed and a Priessnitz bandage worn round the abdomen. This is made by wringing a towel out of cold or warm water, folding it lengthways so as to make it 10 or 12 inches broad, and wrapping it round the abdomen. It should be secured with safety-pins, and covered with a flannel bandage or strip of blanket rather wider than the folded towel, and also held in its place by safety-pins. This abdominal compress is very effectual and quite harmless. If it causes any irritation, the skin should be protected by being rubbed over with vaseline or oil. A cold bath or cold pack has been used with success in overcoming insomnia depending on nervous excitement, overwork, toxæmia, or the insomnia of insanity. A rough-and-ready cold pack was popular at Cambridge twenty years ago. The sleepless one got out of bed, dipped his sleeping-suit in his bath, wrung it out, put it on again, and rolled himself in a blanket. It was said to be quite effective. Fever patients treated by cold sponging usually fall asleep as the temperature becomes reduced.

The question of the use of drugs by the sufferers from habitual nervous insomnia is much disputed. It is difficult to say how far the effect of the drug acts by suggestion on the mind of the patient and how far it is pharmacologically active. When a 5-grain tabloid of sulphonal or trional or, still more wonderful, of aspirin (salicyl-acetic acid) will give a good night's rest, I am sceptical as to the result being due to any physiological effect of the remedy. However this may be, there is no

reason to believe that such small doses are harmful, and it is better to sanction their use than to run the risk of continued loss of sleep. Perfectly indifferent substances suffice sometimes to induce sleep if labelled "*Sleeping Draught*," such as camphor-water, or a few grains of bicarbonate of soda in some aromatic water, cinnamon, or peppermint. It is much to be desired that the supply of hypnotics should be controlled, and their sale sanctioned only on the presentation of a prescription signed by a medical practitioner, stating the quantity to be dispensed and available only for that occasion. None of these modern drugs develops a craving comparable with that produced by alcohol or opium, nor is any of them attended by the derangement of function caused by these. Opium, or its derivatives, is not now used to produce sleep, except where pain is present, or as a ready means of quieting a patient in an emergency; but no one should prescribe either as a regular hypnotic in nervous insomnia. Even as a means of allaying pain opium has been superseded by many new and efficient remedies, especially for nerve pain (see Pain), and its use should be restricted to single doses administered hypodermically by the practitioner himself, or under his direction. Of the hypnotic drugs in present use, so many are efficient that the chief distinction between them is as to their effect on the heart. Those that depress the circulation should not be used where this organ is weak.

Insomnia resulting from visceral disturbance must be treated by correcting the local trouble; but as it is usually the digestion that is out of order, the food must be regulated, especially that taken at the evening meal, and the proper performance of mastication, above all the provision of efficient teeth, secured. The last meal should as a rule not be taken later than three hours before retiring to bed, and should not consist of indigestible articles (see Indigestion). As the wakefulness

of this form of sleeplessness occurs after some hours, it is the result of the presence in the stomach of a sour residue of the meal. A teaspoonful of bicarbonate of soda dissolved in a breakfast-cupful of hot water may be sipped slowly before going to bed.

The insomnia of heart disease is often a most distressing symptom. For this, veronal sodium (7 grains), or urethane (20 to 30 grains), hedonal (10 grains), or luminal (5 grains), have proved useful; but in urgent cases a hypodermic injection of morphine should not be withheld.

In the case of aged persons, who are exhausted by the effort of undressing and getting to bed, a little hot food should be given after they are in bed, such as arrowroot, or Benger's food, or cocoa, and a tablespoonful of whisky or brandy may be added. Some of the same food may be placed in a thermos flask by the bedside for the patient to take on waking during the night.

SMALLPOX (Variola).—A highly contagious eruptive fever, to which children and negroes are especially liable, but no age, race, sex, or class, is exempt. One attack generally confers immunity. The incubation period is twelve days. The onset is marked by severe backache, prostration, and a rise of temperature to 103° or 104°, sometimes by initial erythematous or petechial rashes. The eruption shows itself on the third day by red spots on the face, wrists, and other parts. By the fifth day they become raised, shotty papules; by the sixth vesicles; and by the seventh or eighth day they are enlarged and umbilicated. By the eighth or ninth the contents are purulent. With the occurrence of suppuration the skin swells, the eyes are clouded, and great pain and discomfort are experienced. The eruption may affect the mucous membrane of the nose, mouth, pharynx, larynx, and trachea. The constitutional disturbance is chiefly

during the first three days, the temperature falling, and general improvement following the appearance of the eruption. In modified smallpox the rash is aborted, and convalescence commences; but in more severe types the temperature does not reach normal, improvement is only partial, the fever returns with the suppuration, the patient is sleepless and delirious. On the eleventh or twelfth day the pustules begin to dry up, and scabs form; but convalescence is slow, and hyperæmic spots mark the site of the pustules for a varying period.

Confluent Smallpox is usually fatal. The pustules coalesce, the fever is high, and attended with delirium. In **hæmorrhagic smallpox** blood is effused into the vesicles, and bleeding takes place from the gums, nose, bowels, kidneys and uterus. It is very fatal. In **varioloid**, or modified smallpox, the first stage may be as above described, or milder.

The *prophylaxis* of the disease is by vaccination, notification, and isolation in special hospitals. There is no specific treatment, but the patients should be treated in bed. Tepid sponging and frequent changes of linen promote comfort, and, to prevent pitting if possible, the light should be shaded by red screens, so as to exclude the ultra-violet rays, or, if this cannot be done, the face may be smeared over thickly with a mixture of lamp-black and compound tincture of benzoin.

SNAKE-BITE is not a common accident in this country, but our British Colonies and Dependencies are so widely distributed all over the world, and so many British practitioners spend a large part of their lives abroad, that the subject cannot be overlooked. Even in our remote country districts such accidents occasionally occur. The only venomous snake found in Britain is the adder, and this reptile is never found in Ireland, the Isle of Man, or the Channel Isles. It is much more common in some

counties than in others, and is said to be most abundant in Devonshire and in the Island of Mull in Scotland. Children most commonly suffer from snake-bite, owing to their limbs being frequently uncovered. The accident usually occurs by their stepping upon, or close to, the reptile. The adder never attacks except in self-defence, and will always escape, if possible. The diagnosis is generally clear from the history, but if the patient has become unconscious, the presence of the two punctures made by the fangs, which are from $\frac{3}{5}$ to $\frac{1}{2}$ inch apart, are characteristic; but occasionally only one fang may have penetrated, or the snake may have struck twice. The severity of the symptoms depend upon the dose of poison injected, and upon the resistance of the individual. In experiments with snakes, it has been shown that when the snake bites it discharges a certain amount of the venom stored in its poison-sacs, and that it may be made to discharge this to such an extent that a bite becomes practically innocuous until the snake has had time to secrete a fresh supply. This probably accounts for the occasional immunity from otherwise fatal bites. The symptoms of snake-bite come on very rapidly, with pain at the seat of injury, vomiting, prostration and syncope or coma. The vessels of the limb become painful, and the lymphatics distended and dark. The skin around the puncture becomes bluish-coloured, and the whole limb is swollen and occasionally discoloured. When the patient recovers consciousness, there may be delirium, the pupils may be dilated, the temperature is normal, and the pulse only slightly quickened. The respiration is hurried, and the heart sounds may be feeble. Ligatures around the limb, incision at the seat of the bite, and expression in the hope of squeezing out the poison, are not very effective, owing to the viscid character of the venom, which is a colloidal body. Such measures may, however, do good by delaying the absorption of the poison.

The best treatment is to inject hypodermically around the bite 10 c.c. of a 5 per cent. solution of permanganate of potash, or preferably permanganate of zinc. In countries where snake-bites are more common, a solution of this, or of chloride of gold (2 per cent.), should be kept handy, and 10 to 20 c.c. injected around the bite as soon as possible after the injury has been received.

SNEEZING (Sternutation).—An involuntary, violent, spasmodic reflex expiration through the nose, caused by local irritation. It is a common symptom of coryza (*q.v.*), but may occur from the irritation of dust, pollen (see Hay Fever), acrid fumes, or snuff, or in some persons with sensitive mucous membranes from the action of sunlight on the eyes. Some neurotic or hysterical persons have paroxysms of sneezing without obvious cause.

SOMNAMBULISM.—In normal sleep the sleeper is unconscious and inactive. On waking, he has no recollection of anything that has happened external to himself during the time he has been asleep. Some persons talk or mutter in their sleep, apparently in relation to a dream, just as a dog may growl and bark in his sleep, and move as if he were hunting, pointing to a certain tendency to activity. In a higher degree the sleeper may get out of bed, and walk about performing more or less complicated acts, such as lighting a candle, opening a door or even writing a letter. He may also, but more rarely, speak, and most rarely he may have his eyes open, and apparently see and hear, yet on awaking he has no recollection of what he has done, said, or heard. This condition has a great analogy in hypnosis, or the mesmeric sleep. Minor degrees of sleep-walking, or somnambulism, are not very uncommon in nervous children, but the habit disappears as they grow older. In adults it is less common and more serious, as in all cases it indicates a morbid state

of the nervous system. It may show itself in one member of a family where a brother or sister is epileptic, or be associated in the same individual with epilepsy or hysteria.

A sleep-walker should be gently led back to bed without being rudely awakened, and watched for a while. A dose of bromide of potassium (20 grains) should be given at bedtime, and the evening meal should be of the simplest and most easily digestible kind, without animal food.

SPASTIC CONTRACTION.—Spastic or stiff contraction of muscles occurs in chronic ergotism (*q.v.*), in hysteria (*q.v.*), in paralyses associated with sclerosis of the pyramidal tracts; exaggeration of the reflexes, ankle clonus (*q.v.*), and Babinsky's sign (*q.v.*), are present.

SPINAL RIGIDITY.—Rigidity of the spinal column, either in its whole length or in part, is caused by fibrous or osseous ankylosis of the vertebræ (spondylosis). It may be caused by rheumatoid arthritis, rheumatism, osteitis deformans, or gonorrhœa, by injury, or by senile changes. It may in some cases be associated with pain, paræsthesia, and wasting of the muscles, due to thickening of the spinal meninges, with atrophy of the spinal ganglia and degeneration of the nerve roots and posterior columns.

SPLENOMEGALY.—Enlargement of the spleen is a symptom common to many conditions, which may be classified under four headings—(1) Infective diseases; (2) blood diseases; (3) congestion and inflammation; (4) new growths and new formations.

In the first group is the enlargement of malaria, kala-azar, ponos (septic marsh fever), anthrax, and typhoid fever; in the second, leukæmia and polycythæmia vera; in the third, the enlargement that occurs in diseases of the heart or lungs, in cirrhosis of the liver, in obliteration of the splenic vein, in embolism, infarction, and abscess;

in the fourth, primary cancer, lymphosarcoma, hydatids, syphilis, tuberculosis, and waxy disease.

An enlarged spleen projects forward from below the left costal border in the direction of the umbilicus, or in more extreme cases towards the right anterior superior spine. Its border is rounded, while the inner edge is marked by a deep notch. It is seldom painful or tender, except when it is the seat of recent inflammation or infarction. It may attain great size, so as to occupy the whole abdomen, and may weigh 7 or 8 pounds (its normal weight being 5 to 7 ounces).

The malarial spleen may be hard and friable, so that rupture, followed by death from hæmorrhage, is not an uncommon consequence of a fall or blow.

The blood-changes that occur in connection with the various anæmias associated with splenomegaly are characteristic and diagnostic. In infantile splenic anæmia the enlarged spleen appears to be the cause of the disease, judging by the success that has followed the excision of the organ in this type. In most others the enlargement is secondary, and excision of the spleen is dangerous and useless.

SPONDYLOLISTHESIS.—This is a slipping forward of the bodies of the lumbar vertebræ upon the sacrum, caused by fracture of the articular surfaces or non-union of their laminæ. It gives rise to lordosis (*q.v.*).

SPRUE (Tropical Aphthæ).—This disease goes by many names—*e.g.*, hill diarrhœa, Ceylon sore mouth, psilosis linguæ. It is a chronic catarrh of the entire alimentary tract of unknown causation, but it is endemic in India, Ceylon, the Straits, and parts of China and Japan. The liability of Europeans to suffer is increased by length of residence, by any chronic ailment or debilitating condition, especially by digestive disorders. The middle-aged suffer more than the young, and women more than men,

pregnancy being most unfavourable. Its *onset* is insidious, with soreness of the tongue and gums, follicular ulcers on the lips and cheeks. These disappear in a few weeks, but the patient remains dyspeptic, and may have diarrhœa. Such attacks recur at short intervals, perhaps, for years, but may stop if the patient goes home. **Diarrhœa** begins either with an acute attack or persistent looseness, the bowels being open twice before breakfast, and again afterwards. The stools are pale yellow, loose, and watery, sometimes frothy, becoming later offensive. They contain no bile pigment (see Schmidt's Test). Tenderness of the tongue may begin suddenly or insidiously by the formation of red raised spots, which spread until they invade its entire surface. The papillæ disappear, the mucous membrane becomes smooth, the muscle wastes, so that the organ is protruded with difficulty. It is fissured, cracked, or ulcerated, and very sensitive. Erosions form on the gums, frænum, cheeks, and lips. Taste and smell are impaired, speaking and swallowing are painful, and there is salivation. There may be acid vomiting, anæmia, wasting, œdema, depression, and progressive weakness. The abdomen is retracted, the liver dulness diminished, the urine of low specific gravity, but free from albumin. The temperature is generally subnormal, but may rise towards the fatal termination. The voice becomes hoarse or lost, the skin is pigmented, and there are profuse night-sweats. Blood and mucus appear in the stools, and death results from exhaustion. The duration of the disease is indefinite. The prognosis should always be guarded. The treatment should, if possible, be by change to Europe. Rest in bed is advisable for a month, while the patient is put on a diet of pure milk, or minced meat and hot water, until the looseness of the bowels is checked. Some cases have been treated successfully by fruit-cures, but the diet must be by one thing at a time until the irritability of the diges-

tive tract has disappeared. This dietetic treatment may be aided by bismuth and alkalies, or by weak acids. A dose of castor oil, followed by six-hourly doses of 3 grains of santonin, has been recommended as a specific, and, considering the prevalence of parasitic worms in the tropics, it may be worth trying. A mouth-wash of 1 per cent. carbolic acid, and touching the ulcers with nitrate of silver or sulphate of copper after painting with cocaine, will afford some relief to the soreness of the mouth.

SPUTUM (see **Nummular Sputum, Prune-Juice Expectoration, Hæmoptysis, Cough**).—The material brought up and expectorated after coughing, the product of catarrhal or other inflammatory affections of the lungs and air-passages. It may be mucous, muco-purulent, purulent, blood-stained, or almost pure blood, or coloured by altered blood. As a rule it is frothy, from being mixed with air, but may be so viscid that there are no air-bubbles.

In **acute catarrh** of the larynx, trachea, or bronchi, it is mucous or muco-purulent, at first clear and frothy, later yellowish, from the presence of pus, and finally scanty, grey, or blackish, from pigmented epithelial cells. In **chronic catarrh** it is muco-purulent or nearly pure pus, especially in chronic bronchitis, with bronchiectatic cavities. In pneumonia it is scanty, viscid, and rust-coloured, but in fatal cases it may assume the appearance of *prune-juice*. In **pulmonary phthisis** at first it may be blood-stained froth or pure frothy blood, later becoming purulent, but containing more or less blood and fragments of elastic fibre. In asthma (*q.v.*) it contains Curschmann's spirals (*q.v.*) and Charcot-Leyden crystals (*q.v.*).

SQUINTING.—Squinting, or strabismus, is a want of co-ordination in the direction of the eyes upon an object.

Apparent strabismus is nothing more than an abnormal width of the fold of mucous membrane which covers the eyeball at the inner angle of the opening of the eyelids,

thereby giving an appearance of inequality in the direction of the eyes. It is usually seen only in childhood, and disappears as the bridge of the nose grows.

Paralytic squint is caused by some affection of the nerves supplying one or more of the muscles moving the eyeball. Thus, paralysis of the third nerve causes ptosis and external strabismus, as all the muscles of the eyeball, except the external rectus and superior oblique, are involved. In addition, the levator palpebræ superioris is paralyzed, hence the eyelid droops and the globe is turned outwards and upwards. This is the commonest form of paralytic squint occurring in migraine, syphilitic brain disease, diabetes, diphtheria, and meningitis.

Paralysis of single muscles is generally traumatic, but some cases are attributable to "rheumatism," or to lesions involving the nuclei of the fourth or sixth nerves in the brain or of their trunks from meningitis or intracranial growths. The patient complains of seeing double, and cannot move the eye in the direction of the paralyzed muscle.

Non-paralytic strabismus is by far the most common. It is not strictly congenital, because the young infant does not fix its eyes, and only gradually acquires the art of seeing objects distinctly. The gradual nature of the process by which accurate sight is acquired is shown in cases of congenital cataract, where, after recovery from the operation, the patient has to be educated to see things, proving that vision is not so much a function of the eyes, which are only optical instruments, but of the visual centres in the brain.

Squints are classified in accordance with the abnormal direction in which the eyes are drawn as convergent, divergent, ascendent, and descendent. Convergent squint is associated with hypermetropia, in which the patient makes a great effort to shorten the focus, and at the same time over-converges the eyes, so that double vision results,

and to avoid this the patient gets to disregard the image of the weaker eye. Divergent squint is associated with myopia, in which the focus of the eyes being too short, there is no convergence, and the weaker eye, in which vision is less good, turns outward.

This being the pathology of the condition, the rational treatment is by correcting the visual defects by glasses, and in convergent squint (hypermetropia) paralyzing the accommodation by atropine, which may have to be kept up for some time. There are various " orthoptic " exercises by which the eyes may be trained to correct the defect, but these must be carried out under the advice and direction of an ophthalmic surgeon. Operations are sometimes performed, but much less commonly than in former times.

STAMMERING.—A functional nervous affection involving the muscles concerned in articulate speech. The sufferer finds it impossible to produce the first word he desires to say, the muscles concerned being thrown into a state of tonic or sometimes clonic spasm, resulting in the former in arrest of speech, and in the latter in the repetition of such meaningless sounds as *ah*, *ah*, *ah*, *ah*, or *ba*, *ba*, *ba*, *ba*, until by an effort he gains control of his muscles, and produces the desired word in a more or less explosive fashion, the remainder of the phrase or sentence being delivered without difficulty, but the spasm may recur after each pause. It is characteristic of this affection that when the patient is alone he speaks normally, and if taught to sing or declaim, as in acting, may be able to do so without trouble. It is therefore a purely inhibitory effect of self-consciousness, which can be cured by training and practice like any other awkward habit.

STATUS EPILEPTICUS is where one epileptic fit succeeds another without any return of consciousness. The

best treatment is an enema of chloral hydrate, a dose of 40 grains dissolved in 4 ounces of water being injected slowly into the rectum, and retained by holding a napkin pressed firmly against the nates.

STEATORRHŒA.—See **Fatty Stools.**

STELLWAG'S SIGN.—See **Exophthalmic Goitre.**

STERCORACEOUS VOMITING (see **Vomiting**).—Stercoraceous or fæcal vomiting implies that the contents of the ileum are being brought up, and this is so commonly the consequence of acute intestinal obstruction from hernia, twist, intussusception, peritonitis, or growth, that its occurrence is regarded as ominous; but it may be the result of merely excessive and repeated vomiting.

STERILITY.—This condition must be distinguished from impotence. In the *male* it is due to—(1) Malposition or retention of the testicles, which under these circumstances are atrophied and sterile; (2) bilateral obstruction of the vasa deferentia or epididymis, which is rarely congenital, but usually gonorrhœal or tubercular, occasionally the result of injury; (3) obstruction, stricture, or fistulous openings in the urethra, prostate, ejaculatory ducts, or seminal vesicles. In the *female* it may be caused by—(1) Defective ovulation from immaturity or senility, from ovarian or constitutional disease; (2) absence or incomplete development of the ovaries—in these conditions treatment is hopeless; (3) growths or cysts of the ovary (ovariotomy is desirable on general grounds, but cannot affect the sterility); (4) defective passages, atresia or absence of vagina, imperforate hymen or the presence of a septum or diaphragm, stricture of the external or internal os uteri, or of the Fallopian tubes; (5) inflammation of the lining of the uterus or tubes, especially the latter, from gonorrhœal salpingitis; (6) malposition of the uterus; (7) functional hindrance to intercourse from

vaginismus (painful vaginal spasm), relative small size of the vagina, nervousness, or any condition rendering coitus painful or disagreeable.

Defective ovulation may be due to obscure constitutional causes, occurring sometimes in very thin persons, more often in the obese. Alcoholism and morphinism may cause it.

The treatment of these various conditions calls for a good deal of tact and skill. Separation for a time is highly desirable in order to carry out the necessary hygienic measures. Mechanical obstructions may in some cases be remedied by surgical operations.

STERTOR (Snoring).—Stertorous breathing, or snoring, is present in very deep sleep, either natural or the result of general anæsthesia, alcohol, opium, apoplexy, or uræmia. Its proximate cause is partial paralysis of the soft palate, which vibrates during respiration. It is common in those who eat and drink largely.

STIGMATA.—See **Hysteria.**

STRANGURY.—See **Micturition, Painful.**

STRIDOR.—A grating noise applied to the sound of harsh breathing, caused by pressure upon the trachea, or the existence of a foreign body obstructing the larynx or trachea.

SYNCINESIA.—A symptom occasionally met with in hysteria, where the patient raises both arms when asked to raise one only.

SYNCOPE, or fainting, is temporary loss of consciousness, depending upon failure of the blood-supply to the brain, and it is characteristic that the pulse is feeble, fluttering, and irregular. The patient feels faint, grows pale, staggers, or falls, and loses consciousness more or less completely. The pulse is usually quickened and

weak; the respiration is feeble. The surface of the body is cold, and often bathed with clammy cold sweat. If the pulse and respiration stop completely, death may result. As a rule, when the patient is in a horizontal position, the blood returns to the brain, the colour to the cheeks, the pulse improves, the respiration deepens, and recovery ensues. Vomiting is not uncommon, and the attack may be followed by excitement or even delirium, but this soon passes off if perfect quiet is maintained.

The liability to syncope depends upon (1) the impressionability of the nervous system, and (2) the state of the heart. The former varies in individuals, and as a rule is greater in young persons than in those older, in females than in males. The impression may be conveyed through any of the senses—for example, people faint at the *sight* of blood, at *hearing* bad news, at *smelling* an offensive odour, or from pain or a visceral sensation in the stomach or uterus. Impressionability may be diminished by attention being concentrated elsewhere, as when a soldier in excitement of battle is not conscious that he is wounded.

A special liability to syncope is associated with persistence or enlargement of the thymus gland (see Status Lymphaticus), persons with this condition having been found to die suddenly from syncope while bathing or under an anæsthetic. This may happen not only to children, but to adults. Such individuals are usually pale, and *post mortem*, besides the enlargement of the thymus, the aorta may be found narrowed.

In organic disease of the heart syncope occurs repeatedly from **heart-block** where there is impairment of conductivity in the auricular bundle, by which the stimulus of the auricle is conveyed to the ventricle. In this condition the ventricle may contract only once for every second or third auricular beat, or the pause may be so long that the face grows pale, the pulse stops at the wrist,

consciousness is lost, and there is at times a slight convulsion; then the colour returns to the cheek, the pulse to the wrist, the patient opens his eyes and returns to life. This sequence may recur at short intervals for hours together, and yet eventually the attack passes off, the patient may recover and survive for years, but is liable to recurrences. Two old men are living at this time of writing in whom this condition has lasted for at least six or seven years. This is what is called the Stokes-Adams "syndrome."

In myocardial degeneration, where the left ventricle is weak, fatal syncope may occur. For example, in aortic regurgitation, in fatty heart with or without angina pectoris, in gouty myocarditis, or in anæmia where the heart is weak but in addition the blood is defective. In the days of bleeding the patients were bled until they fainted; they were bled in an upright position, and the occurrence of syncope was taken to indicate that the desired effect had been produced. The results were sometimes astonishing, as Sir Thomas Watson relates a case in which not until 72 ounces had been drawn "did the patient become faint," and he adds that "the man got rapidly and perfectly well."

In diphtheria sudden death from syncope is caused by the toxins of the disease paralyzing the heart. The same may be a sequel of influenza, although the weakness and irregularity of the heart is not often followed by fatal results.

When the heart is pressed upon by effusion in the pleura or pericardium, fatal syncope may occur.

Fainting may result from emptying a distended bladder normally or by a catheter when the patient is in the erect position.

Fainting is common in hysteria from impressionability of the nervous system, anæmia and feeble heart, combined as they often are in such cases.

Malingerers feign syncope, but not as a rule successfully, although there is a case on record of a man who possessed the power of stopping his heart by an effort of will.

It may be difficult to distinguish fainting from the minor form of epilepsy, *petit mal*. In the latter the pulse persists, and the sphincters may be relaxed. As the medical attendant may have had no opportunity of seeing an attack, and can get no information as to the state of the pulse, while relaxation of the sphincters is often wanting, it is possible for a doubt to exist; but frequent fainting in a child or young adult who is otherwise healthy is likely to be epileptic.

Fainting may occur in all grave debilitating diseases, such as advanced phthisis.

The treatment of syncope is to place the patient in the recumbent position, with the head hanging down, and the access of cool air should be favoured by opening the window, cold water may be sprinkled on the face, and ammonia (smelling-salts) or amyl nitrite given to inhale. If there is not rapid recovery, loosen all the clothes, expose the thorax, slap the præcordia, and if respiration remains feeble draw out the tongue and perform artificial respiration. The patient should be kept lying down quietly for some time, and, except where the fainting has been caused by hæmorrhage, a little stimulant may be given by the mouth.

SYNCOPE, LOCAL.—This condition is popularly known as " dead fingers "; it is caused by vasomotor spasm, so that the part is rendered bloodless, and a prick draws no blood. The affected fingers are pale as wax, cold, and numb, but there is little or no pain. Cold is the chief factor in its causation, but sufferers from it are usually of the female sex. The attacks occur almost daily during cold weather after washing the hands, sewing, or piano-playing, but as a rule no harm results from them.

Dieulafoy used to insist that it indicated chronic Bright's disease, but there is no relation between the two, and he was misled by coincidence.

The condition is chiefly important if it is a stage in the development of Raynaud's disease or symmetrical gangrene, which shows three degrees—(1) local syncope, (2) local asphyxia, and (3) symmetrical gangrene—but it is certain that most cases of local syncope do not proceed farther, and conversely Raynaud's disease does not always exhibit a well-marked stage of pallor. Much more characteristic of that disease is **local asphyxia** or cyanosis, the fingers being blue, slate-coloured, or purplish-black, turning waxy white on pressure, and owing to the sluggish capillary circulation the white impression remains visible for a long time. The adjacent parts show a mottling like erythema nodosum, and these patches may leave pigmented spots behind them that persist for months. As the cyanosis passes off there is sometimes burning pain; the part is hot, of a dull red colour, sometimes sweating, and the patient craves for cool applications. Desquamation of the cuticle may take place after a few days. These attacks may show a curious periodicity, occurring daily with increasing severity, and then diminishing until they finally disappear, and the patient enjoys an interval of immunity. Local asphyxia occurs quite as often, if not more often, in the feet as in the hands, and may involve half or the whole of the foot. It may affect the tip of the ears, the nose, lips, or tongue.

In the third degree, when the disease goes on to gangrene, a small part of the cyanosed area develops a blister with sanguinolent contents, which bursts, leaving an ulcer, or there may be dry mummification of the tip of a phalanx or the whole phalanx. The gangrene is often restricted to the plantar surface of the toes, causing small losses of substance, which heal, leaving permanent scars. Pain is a marked feature, and the lesions are

roughly symmetrical, although the two sides show considerable variation in the intensity of the process.

The majority of the cases do not reach the gangrenous stage. When the condition makes its appearance after an acute fever there may be complete recovery, with no recurrence of the attack.

It is interesting to consider the relation of these conditions to common **chilblains** (*q.v.*), which seem to be minor examples of local asphyxia. They have the same causation, and their tendency to ulcerate brings them into close analogy with Raynaud's disease. Frost-bite, too, is similar in its effects, but the essential difference is that chilblains and frost-bite are the result of severe cold, while local syncope, local asphyxia, and symmetrical gangrene, may be induced by moderate cold, even a chilly day in summer being capable of bringing on an attack. It has also been pointed out that in frost-bite the sequence is (1) hyperæmia, (2) cyanosis, (3) local syncope, the reverse of that of Raynaud's disease.

Raynaud's theory that his disease depended upon a lesion of the central nervous system has received no satisfactory support from morbid anatomy, even assisted by the most refined modern methods of research. Opinion is inclining in the direction of some defect of the blood plasma, a view which is favoured by the benefit derived in the treatment of chilblains from the administration of lactate or chloride of calcium, 15 grains three times a day for two or three days.

Another allied condition is **paroxysmal hæmoglobinuria,** in which the urine contains blood-colouring matter from the breaking down of the red blood-corpuscles. This is induced directly by cold, and hæmoglobin has often been found in the urine and the blood plasma in connection with local asphyxia or symmetrical gangrene. There is strong evidence that this is a blood disease, and although its production is not fully understood, the fact that the

breaking down of the blood-corpuscles may be induced by the administration of certain poisons and by the toxins of many diseases points to the probability that the main factor in this and all allied conditions will be ultimately discovered to be in the blood.

The treatment of these attacks in either degree is by warmth. Local syncope readily yields to friction. Local asphyxia, according to Sir Thomas Barlow, should be treated by immersing the hand in salt water, in which one electrode of a galvanic battery is placed, the other being applied higher up on the limb. The administration of calcium lactate, as above described, should be tried, and the recurrence of attacks prevented if possible by seeking a sunny winter climate, by warm underclothing, mittens, gloves, and other covering, for parts liable to be affected. Vaso-dilators, such as amyl nitrite and sodium nitrate, do not seem to have rendered much service.

SYPHILIS.—A contagious venereal disease caused by infection with the *Spirochæta pallida*, but only spread by contact. Its symptoms are, first, the primary sore (see Chancre); secondly, glandular swellings, an erythematous rash, sore throat, and transient periosteal nodes. In succeeding months superficial lesions develop, sores in the mouth and nose, sores and warts about the anus and genitals, various skin eruptions, papular, pustular, or multiform, which heal under treatment. After an interval of months or years, a series of syphilomatous growths may appear, their effect depending upon the part in which they are situated. In the skin they break down and form excavated ulcers, which on healing leave characteristic scars; in the bones they may cause caries; in the liver they are latent, but by their cicatrices they deform the organ and may obstruct its circulation; in the kidneys they cause hæmaturia; in the brain epilepsy, optic neuritis, paralysis of ocular and other cranial nerves,

vomiting, headache, localized convulsions, and paralysis; in the spinal cord, myelitis (*q.v.*). Small growths in the cerebral arteries cause thrombosis and hemiplegia, or syphilitic inflammation of the aorta may produce aneurism, or disease of the aortic valves or angina pectoris (*q.v.*). These syphilomatous growths (called gummata) or their scars may be found *post mortem* in situations where they have caused no symptoms during life.

Years later further "parasyphilitic" troubles may arise in the nervous system—*e.g.*, tabes dorsalis (*q.v.*), paralytic dementia, and a non-progressive form of syphilitic insanity.

Syphilis is a common cause of abortion (*q.v.*); the child may be born dead, or, if living and apparently healthy, may in a few weeks develop nasal catarrh, erythema, and sores on the buttocks, or about the mouth and lips, leaving scars, or various skin eruptions, enlargement of the liver, caries of the bones, especially the nasal bones; later it may show defective vision from choroiditis, or interstitial keratitis, while the permanent incisor teeth are peg-shaped.

The specific remedies are mercury and iodide of potassium, which are efficient if used in sufficient doses and over an adequate period of time. They can cure all but the parasyphilitic lesions, provided they are used before anatomical changes have resulted, which must necessarily be permanent. The ultimate value of salvarsan is still undetermined, for, although there is abundant evidence of the rapid improvement of symptoms, it remains to be proved that the treatment effectually eradicates the disease. The patient should undergo repeated courses of mercurial treatment by inunction or injection, and in the intervals he should take iodide of potassium. Treatment should be continued for two years. So long as infection persists, the blood gives the Wassermann reaction (*q.v.*).

SYRINGOMYELIA.—This is a disease of the spinal cord, in which the central canal is expanded by a gliomatous overgrowth, probably a developmental defect. The symptoms are—(1) Dissociated anæsthesia, or loss of sensory perception of heat, cold, and pain while tactile sensation is preserved, with various "trophic" disorders the result of the absence of the protective sense of pain; (2) progressive muscular wasting; and (3) chronic destructive lesions of joints exactly similar to those observed in tabes dorsalis (see Charcot's Joints). The position of the lesion in the cord modifies the symptoms. If involving the medulla (rare), they may resemble those of bulbar paralysis, with paralysis of the facial and ocular nerves, of the vocal cords, nystagmus, dysphagia, dyspnœa, irregularity of the heart, and perhaps sudden death; or, if affecting the lumbar enlargement (also rare), paralyzing the sphincters of the bladder and rectum. As a rule the seat of the growth is the cervical and dorsal portions of the cord, causing wasting of the muscles of the shoulder girdle, claw-hand (*q.v.*), arthritis of the joints of the upper extremity, and Morvan's painless whitlow (*q.v.*); if the lower part of the dorsal spine is reached, there is spastic paraplegia. The sympathetic roots may be affected, causing contraction of the pupil and narrowing of the palpebral fissure. Various curvatures of the spine, lordosis, scoliosis or kyphosis (*q.v.*), enlargement of the hands or feet like acromegaly (*q.v.*), spontaneous fractures of bones, and sinking in of the anterior thoracic wall (*en bateau*). The disease occurs more often in males than in females, usually between the ages of twenty and thirty. It may show itself after an injury or after an attack of an acute disease, especially typhoid. It runs a chronic course, and may be stationary for years. Death may occur suddenly from rupture of the cavity, or be the result of septic infection, cystitis, bed-sores, or phthisis. It is incurable.

TABES DORSALIS (Locomotor Ataxy).—This disease of the spinal cord is one of the later results of constitutional syphilis. It commences insidiously, may remain stationary for years or permanently, may exhibit a great variety of symptoms, most of which are dealt with in separate sections. Usually, one of its first symptoms is lightning pains in the legs, or there may be diplopia from paralysis of an ocular muscle; but on examination the patient presents Argyll-Robertson pupils, loss of knee-jerk, and inability to stand steadily with his eyes shut. Atrophy of the optic nerves and blindness may occur, without the case making further progress for years; it may then suddenly develop paralytic dementia, and have to be removed to an asylum in an attack of mania. The ataxic gait which originated the name locomotor ataxy (see Ataxy) may never appear. Various functional changes in the nervous system are frequent—anæsthesia of skin and joints, paræsthesia, allocheiria, parosmia, anosmia, epileptic and apoplectic attacks, arthropathies (see Charcot's Joints), perforating ulcer (*q.v.*), and visceral crises (see Crisis). As already mentioned, the disease may remain stationary and the patient die of intercurrent disease, or pass on to a bedridden termination, or end as paralytic dementia in an asylum (see Ageusia, Allocheiria, Anæsthesia, Analgesia, Anosmia, Argyll-Robertson Pupil, Ataxia, Charcot's Joints, Crisis, Dementia, Diplopia, Fragilitas Ossium, Lightning Pains).

TÂCHE CÉRÉBRALE.—See **Dermatographia.**

TÂCHES BLEUÂTRES.—In typhoid fever and some other conditions patches of a purple colour have been described under this name, but they are now generally regarded as caused by pediculi.

TAPEWORM (Tænia).—The common tapeworms met with in this country are *Tænia solium*, derived from the

pig; and *T. mediocanellata*, from the ox. These parasites usually cause no symptoms except the passage of joints, but under exceptional circumstances they may do so—*e.g.*, polyuria (*q.v.*) has been known to disappear after the expulsion of a mass of tapeworm. Headache, excessive hunger, craving for sweets, colic, diarrhœa, vomiting, pruritus ani (*q.v.*), convulsions, unequal pupils, and paralysis, have been attributed to their presence. The *Bothriocephalus latus* is a tapeworm met with regularly only in Russia, Prussia, Sweden, Switzerland, and Japan; it is derived from fish, and forms toxins, which cause hæmolysis and anæmia of the pernicious type. The treatment of tapeworm in any form, to be successful, involves the sacrifice of two days or a week-end. On the first day no food except milk should be allowed after midday; at bedtime a dose of 20 grains of scammony resin should be taken in milk. The next day the patient should stay in his bedroom, and take male shield fern in the form of the ethereal extract in capsules, ½ drachm every hour until 2 drachms have been taken. The only food allowed is milk. That night the dose of scammony resin should be repeated, and the stool next morning passed into muslin, washed under a tap, and the head of the worm looked for. If this is present, a cure may be pronounced; otherwise, three months are allowed to pass, when, if the worm is alive, the joints will reappear, and the treatment must be repeated.

TEETHING.—Dentition in a healthy infant gives rise to no symptoms save salivation and slight soreness of the gums, but in the more irritable type of child there is restlessness, sleeplessness, disordered digestion, cough, eczema, and bronchitis. In predisposed children these disturbances may induce convulsions (*q.v.*) or laryngismus stridulus (*q.v.*). In the presence of rickets dentition is delayed.

TEMPERATURE (see **Fever**).—The normal temperature of the body is 98·5° F. taken in the axilla, as is the usual practice in British hospitals, except in the case of children, when the rectum is commonly used. In private practice the insanitary and somewhat repugnant custom exists of taking the temperature in the mouth, as being more convenient in the case of persons who are fully dressed. In health slight variations of a few decimal points only are observed, the atmospheric temperature having little if any influence. Lower temperatures occur in anæmia, heart disease, exhaustion, shock, or great debility from any cause, while a rise over 99° generally points to the presence of an infective process, but may be due to nervous causes. The uniformity of the body temperature is maintained by the heat-regulating centre in the nervous system, but this may be disturbed, not only by the action of toxins in the circulation, but by affections or injuries of the nervous system. Very high temperatures have been recorded as the result of blows and falls, and in hysteria, while a remarkable case of low temperature in a soldier as the result of an injury to the cervical spinal cord by a shrapnel bullet has been recorded (*British Medical Journal*, February 6, 1915, p. 247). On admission, the temperature was lower than the ordinary thermometer would register, and three days later, when a suitable instrument had been obtained, it was 80·6° F. in the mouth and 80° in the rectum; the next morning it was 86° in the mouth and 88·9° in the rectum, but rose gradually through the day, until at 6.30 p.m., fifteen minutes before his death, it was 105·6°.

TETANIC CONVULSIONS are tonic spasms of a violent kind, especially involving the spinal muscles, seen typically in tetanus, which is an infective disease, most liable to occur in wounds which have been contaminated with earth, or the mud or dust of streets or stables, as

horse-dung is a favourable medium for the growth of the bacillus. The symptoms begin by stiffening of the cervical muscles, followed by tonic spasm of the facial muscles; but later violent paroxysms occur as the result of some slight stimulus, such as a sound or touch. In these all the muscles of the trunk are involved, the back is arched so that the patient may rest on his head and his heels, and this is succeeded by a reversed movement, in which the body is flung round by sudden arching of the spine forwards or to one side. There is great pain, consciousness is not lost, pulse and respirations are quick and irregular, and the temperature may be normal, or rise before death to 105° or more. Death is due to exhaustion. The convulsions induced by strychnine are similar, but the muscles of the face and neck are not involved early, and death occurs more rapidly.

In the severe form of hysteria, the **hysteria major** of the Salpêtrière School, the spasms are tetanic, and the same attitude of arching the back until the body rests on the head and the heels may be assumed. In these tetanic or tetaniform cases there is no true loss of consciousness, and it is one of the worst horrors of tetanus that the patient retains his intelligence and suffers all the distressing agony of his condition. The spasms are very painful, as well as exhausting, respiration is impeded, and the patient dreads the pain of the paroxysms. The wound should be swabbed with iodine, or with 20 per cent. peroxide of hydrogen, which may also be injected under the skin in the neighbourhood of the wound. Other means suggested are the hypodermic injection of sulphate of magnesia, or 2 per cent. solution of carbolic acid, even as much as 22 grains having been given daily without any ill effects. Every scrap of necrotic tissue or blood-clot should be removed from the wound, and free drainage secured. To relax the muscles and prevent spasm, 30 or 40 grains of chloretone dissolved in olive oil may be

injected into the rectum, or chloral in full doses given by the mouth or rectum. In some cases inhalations of chloroform have proved of service. A prophylactic dose of antitoxin serum should be given in all cases of suspicious wounds, 20 to 30 c.c. being injected at once; and if symptoms develop, this dose should be repeated, and 10 c.c. given every hour. In some instances the symptoms are those of intense general septicæmia, with absence of general convulsions. Where there are no general convulsions, spasms in the affected limb may be very painful. The prognosis depends greatly upon the length of the incubation period, as cases where this is less than ten days are much more fatal.

The hysterical fit soon subsides, or may be cut short by douching with cold water.

TETANY (Carpo-Pedal Spasm).—This is an affection characterized by tonic spasm of the hands and feet, usually symmetrical, but attacking as a rule the upper extremities before the lower. The fingers are pressed close together and slightly bent at their bases; the thumb is adducted and flexed on the palm, which is hollowed; the wrist may be flexed and the arm pronated. The feet are extended and inverted, and the toes flexed and adducted; the knees are extended, and the thighs may be strongly adducted. The spasm is paroxysmal, but may be induced by compressing the limb over the principal vessels and nerves. The muscular irritability is so great that a tap over a muscle or its motor nerve will cause muscular contraction (Chvostek's symptom). There may be tingling and numbness or pain, which is not usually severe, but is in proportion to the intensity of the spasm.

This condition is common in childhood, where it is as a rule mild and limited to carpo-pedal spasm. It is associated with signs of gastro-intestinal irritation, diarrhœa being commonly present, and there may be general con-

vulsions or laryngismus stridulus. The subjects are often rickety, ill-fed babies.

Many severe cases in adults have been met with in obstructive dilatation of the stomach with stasis of its contents. The condition is a grave one, as out of twenty-five recorded cases nineteen were fatal. Washing out the stomach appears to have done harm rather than good, and chloral or morphine, which has been frequently given, is ineffective. The present recognized treatment is gastro-enterostomy, quite a number of successful cases having been published.

Tetany has been described as occurring in epidemics, or as a sequel to other infectious diseases, such as cholera, typhoid fever, influenza, and smallpox, or in pregnancy, the puerperal state, and lactation, or after complete excision of the thyroid.

While, as already stated, the disease is grave in dilated stomach and after excision of the thyroid, it is not generally dangerous. In the latter condition administration of thyroid gland has been employed with success. Warm baths afford relief during the paroxysms, and bromide and chloral have proved of benefit. Attention should be directed to the state of the alimentary system by regulating the diet, checking diarrhœa, and giving small doses of mercurials, grey powder, calomel, or corrosive sublimate. Risien Russell recommends the hypodermic administration of pilocarpine as a ready means of bringing about relaxation of the spasm, while for nocturnal tetany Gowers prescribed a dose of digitalis at bedtime.

THIRST.—The craving for liquid is dependent upon decrease of water in the tissues, in consequence of their constant dehydration by the exhalation of watery vapour from the lung by the sensible and insensible perspiration from the skin, and loss by kidneys and bowel. The loss

of water in all these ways is increased by raised external temperature, exercise, fever and diseases which augment the quantity of liquid discharged by the kidneys or bowel, as in diabetes or diarrhœa. But the sensation of thirst may occur without any physiological need, as after abdominal injuries and operations, where it is very marked; after general surgical anæsthesia; in gastric disturbances; after immoderate indulgence in alcohol; and in consequence of swallowing salt or sweet food. It frequently results from auto-suggestion, or habit, when at a certain hour "a drink" is regarded as a necessary incident of the day. Sir Jonathan Hutchinson's xerostomia, or "dry mouth," appears to depend on diminished salivary secretion, which he attributed to a derangement of the nerve centres, but it is probably caused by disease of the parotids and submaxillary glands. In some cases of **diabetes insipidus** thirst is the initial symptom, and the polyuria is the result of the excessive quantity of liquid taken.

The treatment of cases that depend upon excessive loss of water should take the form of replacing the liquid by drinking, by enemata, or by irrigation, or by hypodermic or intravenous infusion of normal saline. The thirst after abdominal operations or injuries may be relieved by enemata or by irrigation of the bowel, and by giving small quantities of cold or tepid water with which to wash out the mouth. In pneumonia and other fevers sipping cold water or giving ice or slices of lemon to suck may relieve. In xerostomia pilocarpine may be tried; it is recommended that a $\frac{1}{4}$-grain tabloid should be "allowed to dissolve on the tongue occasionally," but the mouth should be carefully examined, and any carious teeth or other sources of irritation removed.

The most serious form of thirst is that associated with polyuria or **diabetes insipidus.** The condition is sometimes syphilitic, and antisyphilitic remedies should have

a fair trial. Opium is the only drug that exercises any effective control over the thirst, but it should be kept in the doctor's hands, or the patient may fall a victim to the drug, and his last state be worse than the first. We ought to be suspicious of any demand for an increased dose, but it is better not to let the patient know what he is taking. A pill of 1 grain of extract of opium given at bedtime should be sufficient to afford a reasonably good night's rest, and the same dose may be repeated in the morning if necessary. It is cruel and useless to deprive these patients of liquids, but they should be advised to drink as little as possible, using slices of lemon to suck, or any simple means by which the craving may be allayed.

THOMSEN'S DISEASE.—See **Myotonia Congenita.**

TICK FEVER (Piroplasmosis).—The tick is a form of acarus, existing commonly throughout tropical and subtropical countries. Many species are known to attack man, and are credited with the causation of fevers. These pests bury their heads in the skin, and suck until they are distended with blood; but even then do not readily relax their hold, and if pulled roughly the head may remain in the skin. By covering them with oil, vaseline, turpentine or petroleum, they may be induced to let go. The bites may inflame and cause trouble, but the chief harm they do is by acting as the intermediate hosts and carriers of pathogenic sporozoa, of which one, the *Piroplasma hominis*, is said to be the cause of Rocky Mountain tick fever. Ticks are accused of causing the Texas fever of cattle, a severe form of fever attacking man in North Persia, and the South African tick fever.

The last is said to begin five to ten days after the bite, with pain and itching, followed by vomiting, purging, fever, rigors and delirium. The attack lasts from two to seven days, but sometimes longer.

Ticks are seldom encountered except when walking in

long grass, but pyrethrum powder is said to be a preventive if dusted on linen or clothing.

TOOTHACHE.—Pain arising from disease of the teeth is in the province of the dentist, and even where relief is obtained in an emergency it is unwise to postpone seeking skilled help, as a tooth may be saved by timely treatment or be lost by neglect.

Pain arising from dental mischief is not always referred to a tooth or teeth. Pain in the ear, face, forehead, or eye, even in the knee, may be caused by a bad tooth, or pain may be felt in the lower jaw when the diseased tooth is in the upper one.

The pain may be caused by exposure of sensitive dentine, by alveolar wasting or ulceration, by loss of enamel and formation of cavities, by exposure of the pulp, or by periostitis and inflammation of and around the root of the tooth, which may give rise to an abscess.

In an emergency the whole length of the alveolar margin on that side of the painful jaw should be painted with liquor iodi by a small camel-hair brush. This is especially useful when the pain is probably due to **pyorrhœa alveolaris** or its consequences. In young people, where the mischief is in the tooth itself, temporary relief from pain may be obtained by a dose of butyl-chloral-hydrate (10 to 20 grains), or pyramidon (5 to 8 grains), or tincture of gelsemium (5 to 15 minims); but the advice may be repeated that relief from pain, however complete, should not be allowed to postpone seeking the aid of a dentist.

TOPHI.—The localized deposits of urate of soda, called "tophi," form subcutaneous swellings, varying in size from a pin's head to a small orange. They may be part of a gouty thickening, or enlargement of a joint, tendon, or bursa. Small tophi are commonly seen on the ears, eyelids, and fingers. They are usually yellowish nodules

about the size of a split pea. Occasionally they ulcerate, and discharge a creamy pus. But apart from the occurrence of gouty inflammation, they are not in themselves painful, and after an attack of inflammation they may be greatly reduced in size. Occasionally they are productive of a large amount of deformity and crippling of the hands.

TOXÆMIA.—This expression in its modern sense implies the constitutional effects of the absorption of poisons (toxins), generated in the body in consequence of microbial action in foci of disease, or possibly in abnormal conditions of the alimentary canal. The symptoms arising vary with the specific nature and the quantity of the poison operating, but generally include muscular weakness, incapacity for mental exertion, headache, pains in the back and limbs, loss of appetite, sweating, quickened pulse and respiration, albuminuria, some disturbance of temperature, and cutaneous eruptions mostly of an erythematous type. But the various toxins show a disposition to localize themselves, and determine more or less definite groups of symptoms. For example, the toxin of diphtheria especially affects motor nerves, of rabies the spinal cord, of typhus the brain, of influenza the heart and cerebral hemispheres, of scarlatina the skin and kidneys, of scorbutus the blood, and of measles the mucous lining of the respiratory tract. We have tried to distinguish between the direct effect of the microbe and of its toxin, although it may not always be possible to do this accurately; but, for example, the throat lesion in diphtheria, the bowel lesion in typhoid fever, are the local results of the growth of the bacillus; while the peripheral neuritis in the former case, and the fever and cerebral symptoms in the latter, are due to the toxins absorbed from these local lesions.

Toxins formed by microbial action may be swallowed

in food, and, being absorbed into the blood, may give rise to symptoms varying in gravity from urticaria (nettle-rash) to fatal convulsions and coma. Here, again, we must discriminate between the effects of the microbe upon the alimentary canal, which are as a rule slight, their vitality being destroyed by cooking or by the action of the hydrochloric acid of the gastric juice, and of the toxins formed in the food before it was eaten, to which the most grave consequences are generally due. Even this danger is guarded against in health by the antitoxic action of the liver, so that it needs an overwhelming dose, or the presence of circumstances by which this function of the liver is in abeyance (*e.g.*, alcoholism), for toxins so introduced to reach the blood in a fatal dose.

The poison of snakes is probably a microbial toxin or an analogous substance. When injected into the skin by the puncture of the reptile's tooth, it is rapidly absorbed, so that it exercises its full effect. These are, locally, irritation, swelling, hæmolysis, and more remotely depression of the circulation and the functions of the brain. It is interesting that experience accords to alcohol the greatest power in antagonizing the effects of snake poison, so that the largest doses (a bottle of brandy) are given with good effect. This action of alcohol may justify the large quantities given in fevers by Todd, and as we know of no other drug which can be relied upon to counteract the toxins of disease, a more liberal use of alcohol in grave toxæmic conditions should have a better trial—not to strengthen the action of the heart, which it does not do, but for this specific effect.

Toxæmia is constantly invoked to explain many minor conditions of whose true nature we are ignorant. Thus used, the term is merely a cloak for ignorance.

TRACHEAL TUGGING.—In aneurism of the transverse part of the aorta pulsation is communicated to the

windpipe, which can be felt if the patient's head is drawn backwards and the larynx is grasped by the fingers. With each systole of the heart the larynx is drawn slightly downwards.

TRACHOMA.—This is an acute infectious conjunctivitis characterized by the presence of "sago grain" granulations. The result is chronic trachoma or granular lids (see Entropion). It is very intractable, and causes considerable impairment of vision. Some success has been claimed for X-ray treatment.

Trachoma of the vocal cords is a granular condition of the glottis, consisting of small hypertrophies called "Singer's nodules." They cause hoarseness and fatigue in speaking. The treatment should be by training in voice production and the correction of the faulty method in use.

TRANCE.—See **Lethargy.**

TRAUMATOPNŒA.—This is the technical description of breathing through a penetrating wound of the chest, but air may go in and out without there being any wound of the lung. The air is drawn into the wound and expelled with each movement of the chest.

TREMOR.—This is an involuntary oscillation of any part of the body in consequence of rhythmical alternate contractions of opposing sets of muscles. It is not paroxysmal, thereby differing from convulsion, to which it is closely allied. The two great divisions to be made are—(1) Volitional or intentional tremor, which comes on or is much increased when the patient attempts to execute any movement; and (2) passive, which is more or less continuous while the patient is not asleep, but can be to some extent controlled. Examples of the first are seen in disseminated sclerosis, in nystagmus, and in mercurial poisoning; of the second, in paralysis agitans

and chorea. Fine tremor is met with in Graves' disease, alcoholism, tea, tobacco and other vegetable poisonings; coarse tremor in organic nervous disease and metallic poisonings. Tremor is always absent during sleep.

Some forms seem to be hereditary; for example, " nodding " tremor, that comes on in middle life, and is in no degree senile.

TRICHIASIS.—Irritation of the ocular conjunctiva from inversion of the margin of the lids (see Ectropion, Entropion).

TRICHINIASIS (Trichinosis).—This disease is caused by the ingestion of the *Trichina spiralis*, a parasite of the pig; but as this is easily destroyed by heat, it occurs only among people who eat uncooked pig's flesh. The minute nematode lies coiled up and encapsuled between the muscle fibres; in the stomach the capsule is digested, and the parasite liberated. At the end of four days it becomes sexually mature, and three or four days later it begins to produce broods of embryos, which penetrate the intestinal wall and encyst themselves either locally or in some distant part to which they may be transported by the blood-stream. The ingestion of trichinous pork may set up immediately symptoms of gastro-intestinal irritation, vomiting, diarrhœa, colicky pains, and foul tongue; but eight or ten days later, when the embryos have developed, the fresh symptoms are pains, worse on movement, with swelling, tenderness, and hardness of the muscles. The temperature runs up to 102°, 103°, or even higher, with slight morning remissions. The affection of the muscles may interfere with respiration, locomotion, mastication, deglutition, speech, and facial expression. The face is puffy; there may be chemosis of the conjunctivæ, or general œdema, profuse perspiration, miliary rashes, pruritus, and later acne pustules or boils. The tongue is often dry, the pulse rapid; there

may be loss of flesh, prostration, in some cases delirium, stupor, or the typhoid state. It lasts five or six weeks, by which time the parent worms are exhausted and dead. Death is rare, but may occur as the result of purging from the bad meat, or from pneumonia or bronchitis.

Should it be known early that trichinous meat has been eaten, it would be well to give an emetic, and after the stomach has been cleaned out this should be followed by a full dose of calomel or glycerine or thymol. The disease may readily be prevented by not eating uncooked pork, in the shape of sausage or ham.

TRICHORRHEXIS NODOSA.—The hair of the beard in this disease looks as if it had greyish-white nodules sticking upon it, not unlike nits (see Lice), but on magnifying one it is seen to be due to imperfect fracture of the hair, the two ends being frayed like a brush. The disease is due to a bacillus, which is more common on the Continent than here. The treatment is not very well determined, but shaving would seem desirable, or as an alternative or addition to the use of antiseptic applications such as 10 per cent. carbolic acid or 1 per cent. formalin in vaseline.

TRISMUS.—Spasm of the masticatory muscles, so as to cause inability to open the mouth or protrude the tongue. This may be the result of caries of a tooth or a dental abscess, but it is especially associated with tetanus.

Trismus Neonatorum is a septic form of tetanus occurring from infection of the umbilical cord.

TSETSE-FLY DISEASE.—See **Lethargy.**

TUBERCULOSIS.—An infective disease caused by the presence of the *Bacillus tuberculosis*. It gives rise to granulomatous growths on the sheaths of the arterioles, which may remain discrete or coalesce into large masses that undergo caseation, softening, and breaking down to

form abscesses, sinuses, pulmonary cavities, or cause chronic diseases of bones, joints, or skin (lupus); or in the discrete form, usually as secondary to a chronic focus somewhere, they may constitute miliary tuberculosis, affecting any or all the organs, or restricted to the brain (see Meningitis), or the kidneys and bladder. The symptoms vary with the seat of the lesion, but there is always fever, with weakness and loss of flesh.

TUBEROSE SCLEROSIS.—A form of congenital idiocy or imbecility results from tuberose sclerosis, a tumour-like lesion of the brain cortex, associated with the occurrence of similar tumours of the kidney, skin, heart, and other viscera. The mental defect is almost invariably accompanied by epilepsy, and is fatal at a comparatively early age. The onset of symptoms is marked by convulsions, at first limited to the head and eyes, later becoming general, occurring in series of three or four at a time at intervals of a week or more. Death may occur in status epilepticus, but occasionally epilepsy is absent, the patient merely becoming imbecile. There may be spastic paraplegia. Few survive to reach adult life; the majority die about puberty.

The growths are regarded as of the nature of hypernephroma (*q.v.*), originating in the adrenals.

TUMOURS.—These are local circumscribed overgrowths of tissue, not caused by any recognized infection, such as tubercle or syphilis. They are usually divided into innocent and malignant, a classification of great practical importance. An innocent tumour grows slowly, may cause some, but not serious, pain, does not invade neighbouring tissues, although it may alter them and impair their function; while if removed, it does not tend to recur locally, or give rise to secondary growths in other parts. On the other hand, a malignant tumour grows rapidly, invades neighbouring parts, recurs if removed, and forms

metastases. A further classification of less clinical importance is based on the tissue from which they grow or of which they are composed. (1) The great group of connective-tissue tumours, which are mostly, but not always, innocent; (2) the epithelial tumours, mostly, but not always, malignant; (3) the dermoid tumours, formed of skin and its appendages, all congenital and innocent; and (4) ovarian tumours. There are also teratomata or monstrosities, which consist of a mass varying greatly in size, but composed of the tissues of a suppressed fœtus attached to a normal individual, and usually found about the sacrum or the pharynx. Finally, there are phantom tumours (*q.v.*).

TWITCHING (**Subsaltus**) (see **Spasm**).—Involuntary, sharp, clonic contraction of a single muscle or group of muscles, seen under various conditions of irritation of peripheral nerves, or the uncontrolled discharge of a nerve centre in the spinal cord or brain. Twitching of one eyelid may be merely an expression of a tired brain, or a reflex from local irritation; of the facial muscles, from inflammation of the middle ear directly irritating the facial nerve, or a reflex from neuralgia in some part of the fifth nerve; of the fingers in deep sleep or coma, or in the dying (subsaltus tendinum); of the lower extremities in myelitis or fracture of the spine, or of the muscles of the face and hands in chorea (*q.v.*).

TYPHOID FEVER (**Enteric Fever**) (see **Typhoid Spine**). —A specific infectious continued fever, caused by the *Bacillus entericus* (Eberth's bacillus), spread mainly by being swallowed in food or drink which has not been sterilized by heat. The bacilli are generally water-borne, but occasionally are carried by currents of air in dust, or by the legs of flies, or by the hands of persons who are themselves carriers of the bacilli, or by actual contact in the case of nurses and other attendants on the sick.

Injuries have so often preceded an attack that they are thought to have at least a contributory effect, yet coincidence is not incapable of explaining the facts. There appears to be a predisposition in some families to take this fever. The bacillus can be found in the blood most readily in the first week even before a positive Widal reaction (*q.v.*) can be obtained, but it gradually disappears, and is lost by the time the temperature reaches normal. It is excreted by the bile, and passes into the intestine, where it may continue to infect the fæces for an indefinite time. After an incubation period of eight to ten days, the disease begins insidiously, with vague feelings of headache, lassitude, weakness, abdominal discomfort, epistaxis, or deafness. The temperature begins to rise 1·5° to 2° daily, so that at the end of the fourth day the evening temperature is 103° or over, the morning showing about 1° lower. This level is maintained until towards the end of the third week, when it begins to fall by lysis (*q.v.*); but a longer course is not uncommon, and recrudescences of fever frequently interrupt convalescence as the result of either indiscretions of diet or getting up too soon, or even falling out of bed. True relapses, lasting a fortnight, and exhibiting the characteristic temperature curve, are often seen, especially in mild epidemics.

In the second week the symptoms become better developed. The abdomen is distended, and an eruption of pink lenticular, slightly raised spots, which disappear on pressure, comes out in successive crops, chiefly over the upper part of the abdomen and lower part of the thorax, but may be found on the back, the amount of the eruption varying greatly, and bearing no relation to the severity of the attack. Occasionally fresh crops continue to appear after the temperature has fallen. The stools have the colour of yellow ochre, and if loose resemble pea-soup, diarrhœa and frequent stools being

a feature of severe cases. The tongue is at first moist, but soon becomes dry, glazed and fissured transversely. Sordes collect on the teeth and lips. The pulse varies from 80 to 100, greater rapidity pointing to some complication. Insomnia and delirium are common. The patient is more or less unconscious; he must be carefully and constantly fed, and the functions of the bowel and bladder watched. Where there is diarrhœa, stools are often passed into the bed, to the danger of the nurse in attendance. The urine is usually diminished, and may contain a trace of albumin, but a critical diuresis often marks the beginning of defervescence.

The principal accidents are perforation and hæmorrhage; the former is the main cause of death, its symptoms being abdominal pain, distension, Hippocratic facies (*q.v.*), rapid weak pulse, followed by a rise of temperature and death. Hæmorrhage is marked by a fall of temperature, pallor, the passage of a bloody stool, rapid pulse, and signs of collapse. Hyperpyrexia is less dreaded than formerly, since the efficiency of cold sponging has been realized. Other complications are numerous, but of less importance.

Typhoid fever exists sporadically in our great towns, and is chiefly due to the use of mussels collected from beds contaminated by a sewer effluent. Oyster beds are generally well protected, and are therefore much less dangerous; but oysters may be contaminated at the fishmongers. Epidemics have been caused by accidental contamination of the water-supply where there is insufficient storage; for while it is practically impossible to prevent the bacillus getting into the intake reservoir, it cannot live long in water, and will be dead if the water is stored for forty-eight hours in an intermediate reservoir before being distributed.

The treatment is well-organized nursing, with the control of special symptoms, of which the two that need con-

stant attention are the temperature and the diarrhœa. It is the rule to sponge with cold or tepid water whenever the temperature reaches 102·5°, doing one part of the body at a time, and by the diligent performance of this duty the need for more energetic measures is seldom felt. The second rule is to give a 10-grain Dover's powder after each liquid stool, so as to keep the diarrhœa in check. In constipated cases a simple enema should be given every other morning. The bed should be narrow, flat, and provided with a waterproof and draw-sheet. The diet should be whey or milk diluted with equal parts of lime-water if there is diarrhœa, and with barley-water when there is not, and this diet should not be altered until the end of the fever. The resumption of ordinary diet must be gradual, all foods except those that are soluble or finely divided being excluded for two or three weeks longer.

TYPHOID SPINE.—This is a painful affection of the lumbar portion of the spine, coming on during the first fourteen days of typhoid fever. It occurs almost always in males, and is predisposed to by hard manual labour. The pain is paroxysmal and radiating, and may be attended by rigidity (see Spinal Rigidity). It may last a year, with remissions and exacerbations. Pyrexia is common. The reflexes may be abolished; there may be patchy anæsthesia and incontinence; kyphosis or scoliosis may follow. Recovery is said always to take place; but as it is probably caused by a mild form of infective spondylitis, a worse result must be regarded as possible.

TYPHUS FEVER (Spotted Typhus).—An acute specific fever occurring in epidemics, of which the predisposing causes seem to be famine, bad sanitation, and overcrowding. It is conveyed from the sick to the healthy by their exhalations, and by fomites, as shown by the cases among laundry women and sanitary officers engaged in disinfection. The specific microbe has not been identified.

The incubation period is twelve to thirteen days, and the onset is abrupt, with chill or rigor, headache, pains in the back and limbs, or convulsions in children. The temperature rises slowly until the fourth day, when it reaches the acme at 102° to 104°, where it remains without any morning remission until the critical fall on the fourteenth or fifteenth day, though this may have been preceded by a "false crisis" two or three days earlier. The general symptoms are insomnia, clouding of the intellect, face bloated, features blurred, eyes injected, pupils contracted, tongue dry, brown, and transversely fissured, sordes on teeth and lips, pulse 100 to 120; the first sound of the heart is obscured, the respirations are 30 to 40; the urine scanty, high-coloured, and albuminous, and the spleen enlarged. The eruption, which appears on the fourth or fifth day, begins as a crop of rounded pink spots, that do not disappear on pressure, and the later crops are darker in colour, or more definitely purpuric, and may be accompanied by bleeding from mucous surfaces. After the critical fall of temperature, which may be preceded by diarrhœa or polyuria, the symptoms rapidly disappear, and relapse is rare. The unfavourable symptoms are the temperature rising about the eleventh or twelfth day, the skin becoming cold and clammy, coma being deep, and the pulse-rate increasing. A history of alcoholism is bad. The complications are bronchial catarrh, pneumonia, ulcerative laryngitis, nephritis, phlebitis, and hæmorrhages. In alcoholics there is a dangerous liability throughout to exhaustive diarrhœa. The mortality is high, about one in four. The treatment is by careful nursing in well-ventilated or open-air wards, sponging, milk diet, beef-tea, plenty of diluents, attention to the mouth, rectum, and bladder, the use of cardiac stimulants, digitalis, ether, ammonia, or alcohol, or sedatives, especially opium, the value of which Graves rated highly.

ULCER, ULCERATION (see **Perforating Ulcer**).—An ulcer is an open sore or wound, and ulceration is the process by which the tissues undergo molecular death as distinguished from gangrene, sloughing, or necrosis, which implies death of tissue *en masse*. Ulceration is always caused by the presence of pathogenic bacteria, and the predisposing conditions are—(1) A slight wound, abrasion, scratch, or the bite of an insect; (2) œdema or venous congestion; and (3) an unhealthy constitutional condition (Bright's disease, anæmia, malaria, or syphilis). The slight wound should heal, but from the presence of infective bacteria, want of rest to the part, or bad position, causing congestion or œdema, or constitutional defects, repair does not take place, and the ulcerative process continues to increase the area of the sore.

A septic ulcer is painful, red, inflamed, bathed in pus, its surface smooth, covered with small sloughs, and it gives off an offensive discharge. Its edges are irregular, ragged, or undermined, while the surrounding skin is dusky red, œdematous, hot, and tender. There is usually some degree of fever. When the septic condition has been cured, and the ulcer has begun to heal, its surface is covered with pink granulations, while at the margin there is a border of bluish-white, more opaque near the skin, and more delicate towards the centre; there is no pain, heat, or tenderness, only slight hyperæmia, and no fever. An aseptic ulcer will heal naturally if kept clean and protected from injury; but the margin where healing goes on is delicate, and may be injured or destroyed by careless cleansing, by allowing the dressings to adhere to it, by tight bandaging, by preventing the escape of any discharge, or by the continued use of strong antiseptics.

UNDULANT FEVER.—See **Fever.**

URÆMIA (see **Coma**).—This is a form of toxæmia dependent upon defective renal elimination, but the actual

poison has not been identified. Urea, from which the name is derived, has been long ago acquitted, and none of the modern suggestions—potash salts, trimethylamine, chlorides—has been proved to be guilty. The symptoms differ, so that three types may be recognized—(1) In obstructive suppression (from renal calculi), dry tongue, vomiting, and feeble pulse, without convulsion or coma—the so-called "typhoid state"; (2) headache, moist tongue, amaurosis, hiccough, vomiting, dyspnœa, twitchings, convulsions, and coma, in the classical uræmia of Bright's disease; and (3) epigastric pain, rapid pulse, deep sighing respiration, coma in the so-called "Kussmaul's coma" type.

The treatment of the first is not very hopeful, unless the suppression can be relieved by dry-cupping, nephrotomy, or hot-air baths. In the second, purging, diaphoresis by hot-air baths or pilocarpine injections, or venesection, often succeeds, especially in the case of acute or subacute nephritis, where 20 grains of compound scammony powder and a hot-air bath are often all that is needed to remove all symptoms. In the third, transfusion with 40 grains of bicarbonate of soda to the pint of sterilized water should be tried without delay, 1½ to 2 pints being used; but the condition is generally fatal.

URIC ACID.—See **Lithuria.**

URINE.—The examination of the urine constitutes an important part of clinical investigation, as this secretion undergoes changes in most diseases or disorders.

The daily quantity of urine is usually given as from 2½ to 3 pints in men, less in women, and still less in children; but the amount varies, being often not more than 2 pints, without the reduction having any serious significance. It is always desirable that the total urine for twenty-four hours should be collected, mixed together, measured, and any specimen intended for further exam-

ination should be taken from urine so collected. It should be kept in a clean vessel in a cool place.

Less urine is secreted during sleep, more after the principal meals, and a distinct effect is produced by beverages, especially by alcoholic drinks, tea, and coffee. The influence of emotions, fear, anxiety, and the like is to increase the secretion, while in some rare instances of hysteria the quantity may be very small, not more than 1 or 2 ounces daily (hysterical oliguria). In fever the amount is diminished, but in convalescence often increased. In heart disease, acute nephritis, and cirrhosis of the liver, it is decreased; while in diabetes mellitus (see Glycosuria), diabetes insipidus (see Polyuria) and chronic nephritis it is largely increased, amounting at times to as much as 5 or 10 pints or more. The quantity may be intermittent in hydronephrosis, a comparatively small excretion being followed after some days by a copious flow.

The effect of drugs is also marked, the diuresis produced being very great in dropsy, where water is retained in the tissues. The best diuretics are digitalis or strophanthus and the double salicylate of sodium and theobromine.

The **Specific Gravity** of the urine averages 1020, but may be as low as 1002, or as high as 1040, or more. The high figures are seen in glycosuria, phosphaturia, and acute nephritis; the low in diabetes insipidus, chronic Bright's disease, in nervous polyuria, or after copious potations.

The **Reaction** of the urine is acid, turning litmus-paper pink. This is the normal urine of flesh-eaters, while vegetarians pass urine that is neutral or only feebly acid, the urine of herbivorous animals being distinctly alkaline. The reaction of the urine varies with the time of day, the height of the alkaline tide being about noon, when a phosphatic cloud is common (see Phosphaturia). The

immediate effect of a meal is to reduce the acidity of the urine, owing to the demand for acid in the stomach. The effect of administration of acids or acid sodium phosphate is to increase the acidity of the urine, while that of alkaline bicarbonates and citrates is to diminish it. When the urine is concentrated, the acidity is generally high. Feebly acid or alkaline urine is usually accompanied by atonic dyspepsia and deficient secretion of hydrochloric acid in the stomach. Ammoniacal urine indicates decomposition from infection of the urinary tract, but it may occur in normal urine after it has been passed, if it has been allowed to stand.

Turbidity.—Fresh urine is generally bright and clear. If turbid when passed, this is most often due to phosphates, which soon settle, leaving the supernatant liquid clear; or they may be dissolved by adding a few drops of acid. Common, too, is the turbidity that occurs in concentrated acid urine from the precipitation of urates as the urine cools, these dissolving again when it is heated. More persistent turbidity is due to the presence of mucus, pus cells, and micro-organisms, including yeast cells (torulæ), which are sometimes present in saccharine urine.

Odour.—All are familiar with the slightly aromatic and not unpleasant smell of fresh urine; in diabetes it may have a sweet swell from the presence of acetone; the odour of ammonia indicates decomposition; a fæcal odour is always due to a fistulous communication between the bowel and the urinary passage. After eating asparagus or taking copaiba the odour of the urine is characteristic of these substances, while the use of turpentine, even externally, or by inhaling the vapour, gives the urine the fragrant smell of violets.

The **Colour** of normal urine is yellow, being darker or paler as the urine is concentrated or abundant. The normal pigments of the urine are urochrome, uroerythrine,

urobilin, and hæmatoporphyrin, the last two in traces only.

Pathological Pigments and **Organic Constituents** are described in special sections (*q.v.*).

VACCINATION.—This is a preventive inoculation of smallpox now effected by the use of glycerinated calf-lymph prepared under Government supervision. The lymph is rubbed into three or four superficial scarification areas on the outer side of the upper arm, and three or four days later these swell, redden, form vesicles, which on the seventh day are fully developed and contain clear lymph. Later the contents become turbid, the vesicles shrink, dry up, and heal by scabbing, which process is accomplished by the fourteenth or fifteenth day. The effect is to diminish the liability to contract the disease, and to render it milder if acquired. One attack of smallpox (see Variola) usually confers immunity for life, but not always, so that it is unreasonable to expect vaccination to do more than the parent disease. The modern method of using glycerinated calf-lymph has removed any ground for objection that existed formerly when arm-to-arm vaccination was practised and the methods for collecting the lymph were defective. Re-vaccination is desirable for everyone in a smallpox epidemic who has not been vaccinated within five years. There should be a legal definition of efficient vaccination, and all work should be subject to inspection, while **sham vaccination** and false certificates should be dealt with by the disciplinary powers of the General Medical Council.

VAGINISMUS.—Violent contraction of the muscles of all the parts surrounding the vagina on any attempt at intercourse or examination. In the absence of any local sore or abrasion, the condition must be regarded as a neurosis. The examination should be made under a general anæsthetic, and the case dealt with subsequently

by tact, as it is possible that the reaction is due to individual repulsion; but where this is not the case, local analgesics and graduated mechanical dilatation by a dilator should be tried.

VAGINITIS (see **Gonorrhœa**).—**Catarrhal** inflammation of the vagina may be the consequence of some general infective disease or fever, but is most usually the result of **gonorrhœal** infection, in which there is a history of pain, tenesmus, and frequency of micturition. The **vulvo-vaginitis** of children may be caused by dirt or worms, or by indirect gonorrhœal infection from soiled linen. The symptoms in all cases are an opaque white or purulent discharge, with some local irritation or heat. The treatment is by douching with a weak solution of permanganate of potash, but as gonorrhœa is so often the cause of serious pelvic disorders or of blindness to offspring, and is so commonly neglected owing to the slight character of the local symptoms, it is desirable that a bacteriological diagnosis should be made, and when the gonococcus is present, a serious effort maintained to destroy it by antiseptic douching or by packing with antiseptic gauze, and by the use of oil of red sandal-wood, giving 10 minims in capsules three times a day after food. When parturition occurs in a woman known or suspected to be suffering from gonorrhœal infection, every care must be taken to cleanse the child's eyes, and a 10 per cent. solution of protargol instilled into them daily (see Gonorrhœa).

VARICOCELE.—This is a varicose enlargement of the spermatic veins, which can be readily felt, and has been aptly compared to a bag of worms. The symptoms are aching and a sense of dragging in the scrotum on the side affected. The treatment is by wearing a suspensory bandage, or by ligature and excision of the enlarged veins.

VARICOSE VEINS (see **Veins**).—Dilatation and tortuosity of the veins is a frequent result of phlebitis from blows or injuries, but some persons have a constitutional tendency to this disorder, sometimes associated with unusually well developed muscles, but in others with a lymphatic and relaxed state of the body. The condition is not necessarily progressive, but a varicose vein may easily become inflamed or ruptured, so that it is a source of weakness. The radical treatment by excision is most successful, but india-rubber bandages or stockings are palliatives.

VEINS, PAIN IN.—Varicose veins are not as a rule painful unless inflamed, but the varicose enlargement of the spermatic veins causes an aching or a dragging sensation of weight in the scrotum, which is relieved by wearing a suspensory bandage.

Inflammation of the veins—phlebitis—generally causes more or less severe pain or constant aching, but the phlebitis that attacks the femoral vein after typhoid fever or childbirth may be painless, and is revealed only by the swelling of the corresponding extremity.

VENOUS PULSE.—An impulse in the jugular vein can be detected by a suitable instrument (the polygraph). It shows the normal rise in blood-pressure in the vein during systole of the auricle. When there is incompetence of the right auriculo-ventricular valve, a pulse can be both seen and felt in the jugular vein.

VERTIGO.—Vertigo, or giddiness, is a sensation of rotation, associated with more or less loss of equilibrium, so that the sufferer may fall to the ground. It may be produced by rapidly rotating the body, and is believed to be caused in that instance by the formation of waves in the endolymph or fluid contained in the semicircular canals. Injecting forcibly a stream of water from a

syringe against the drum of the ear will in normal persons cause such intense vertigo that they may fall as if shot, and in some diseases of the ear, in Ménière's disease, and even sometimes from impacted wax in the ear, vertigo is a principal symptom.

But although aural or auditory vertigo is that of which there is the best physiological explanation, it is by no means the only or even the most common form.

A curious form is that which is felt in open spaces, the sufferer being unable to cross a large empty room or a deserted square if alone, but feels quite well if he has a companion; while, again, others complain of the feeling in a crowded bustling street, like the case of a hospital patient who said he felt giddy when he left the factory when many other workers were pouring into the street, but that he has never experienced the sensation when walking in the country. Others, again, feel giddy in a room with the door shut. These varieties have been decorated with Greek names—agoraphobia, the dread of open spaces; ochlophobia, the dread of crowds; claustrophobia, the dread of closed places.

Optic vertigo depends upon some defect of vision. A young man consulted me for giddiness experienced chiefly in the street, where he had the disagreeable sensation that he should fall. He was in perfectly good health, strictly moderate in the use of alcohol and tobacco, but he was astigmatic, and used spectacles for reading and writing. He took to wearing his spectacles in the street, and completely lost his symptom.

Vertigo is often a symptom of brain disease. Epileptic vertigo is a minor expression of the epileptic neurosis, which may or may not be associated with convulsive attacks. It may be the first symptom of a tumour in the brain.

In epileptic vertigo there is temporary loss of consciousness, and there may be no tendency to fall down,

so that the patient continues automatically to fulfil what he was doing, or to perform acts of which he has no subsequent memory; or he may seem abstracted and stop, then appear to recover himself and resume the conversation, or go on with whatever he was doing previously. This differs, therefore, in several respects from simple vertigo or giddiness.

Vertigo is undoubtedly caused by altered conditions of the circulation or blood-supply to the brain. It is common from loss of blood, or in anæmia in heart disease, and in interference with the return of venous blood from the head from any cause.

It may also be toxic from alcohol, mushroom-poisoning, cocaine, nitroglycerine, cannabis indica, tobacco, poisonous gases, or from deficient oxygen in the atmosphere.

External heat may cause it, as in a hot room or a hot bath, or from the heat of the sun, perhaps from cerebral congestion.

Slight concussion from falls or blows on the head is invariably attended by giddiness. It is probable that in this case the symptom is due to vasomotor spasm of the cerebral vessels, and consequent cerebral anæmia.

If we may venture to draw a conclusion from these varied circumstances in which the symptom appears, we may say that vertigo results from altered circulation in the brain, sometimes direct, but generally reflex in its origin.

VOMITING.—The evacuation of the contents of the stomach through the mouth is vomiting, or emesis. It is effected by contraction of the diaphragm, the abdominal muscles, and the muscular wall of the stomach, the cardiac opening of the stomach being relaxed. Associated with it are generally a feeling of nausea and a flow of saliva into the mouth.

As a rule vomiting is reflex and involuntary, but some individuals acquire such control over the neuromuscular

mechanism concerned that they are able at will to empty the stomach, or at least to bring up a considerable portion of its contents. It is a common practice to induce vomiting by tickling the back of the pharynx, as it is a reflex act, the centre being in the medulla near that for respiration. The afferent fibres are the glosso-pharyngeal nerves for the soft palate, root of tongue and pharynx, and branches of the vagi and splanchnics in the stomach, liver, kidneys, bladder, ovaries, and uterus, the efferent path being by the motor nerves supplying the muscles concerned.

Vomiting in children is often a premonitory indication of the onset of some acute infectious disease, such as scarlatina, or it may, if persistent, point to the existence of a hitherto unsuspected nephritis.

Irregular sudden vomiting may be caused by the presence of gall-stones without biliary colic or jaundice.

Nervous vomiting is characterized by absence of previous nausea, by independence of the kind of ingesta (a patient able to retain lobster salad may reject water); by the patient returning to table and continuing to eat; by being related to emotion, excitement, or fatigue; by small loss of flesh. It is not necessarily associated with other neuroses. It is often rather regurgitation than vomiting, the stomach contents rising into the mouth and being expectorated, or the food may never reach the stomach, but be regurgitated from the œsophagus, as it may show no signs of digestion or the presence of hydrochloric acid. The attacks may be periodic.

Three types of nervous vomiting are described—(1) Hysterical; (2) Erb's juvenile type; and (3) Leyden's periodic type. The first is the most common, and is that to which the above description most closely applies. The second is more doubtful, and may include the vomiting of acetonuria or of eye-strain. The third is periodic, and attended by pain.

Acetonuric or cyclical vomiting occurs in children, usually ceases at or soon after puberty, is periodic, very intractable while the attacks last, and is characterized by the presence of acetone in the urine; but as this last may be the consequence of want of food, it is possible that the acetonuria is the consequence and not the cause of the vomiting. In the marked acetonuria of diabetes vomiting is not a common symptom.

Eye-strain is credited by American physicians with many general symptoms. It certainly causes headache and nausea, and possibly vomiting occurs at times.

The third type is ill-defined, except by the association of epigastric pain and periodicity; the vomiting is copious and continuous, the abdomen retracted, and the bowels constipated. That there are cases of this type, in which a surgical operation has failed to find anything to explain the symptom, must be allowed. Vomiting is much more common in children from all causes. After chloroform anæsthesia, especially after laparotomy, it may be persistent.

Appendicitis may cause persistent vomiting, resembling nervous vomiting.

Reflex vomiting may occur from uterine displacements, pelvic adhesions, tumours of the uterus or its appendages, from ovarian irritation before or during menstruation, from pregnancy, and from stone in the kidney.

Toxæmic vomiting is seen in Bright's disease (uræmic vomiting), or enlarged prostate, and retention of urine.

Vomiting in phthisis may be due to irritation of the pharynx, from coughing, or from associated gastritis.

The morning sickness of drunkards results from mucous gastritis, the stomach in the morning being charged with mucus. Tobacco is said to have the same effect, but in this country we seldom meet with cases where the influence of alcohol can be excluded. Tea-tasters suffer from

gastritis, with morning sickness; this was more common in the days of "green tea," which is hardly sold now.

It is believed that malaria may cause vomiting, and Cabot has recorded a case that was cured by quinine.

Vomiting in heart disease may be the consequence of the use of digitalis, or it may be uræmic.

Cerebral vomiting is met with as a symptom of Ménière's disease, meningitis, intracranial tumour, and abscess of the brain. The vomiting may be severe, paroxysmal, intensely acid, and associated with severe headache, so that it might be mistaken for acid dyspepsia (hydroxynsis, Reichmann's disease). An injury to the head, causing concussion or cerebral hæmorrhage, is usually attended by vomiting.

The gastric crises of tabes cause pain and persistent vomiting, nothing being retained in the stomach while the attack lasts; but the absence of knee-jerks, of pupil reflex to light, and the presence of inco-ordination or Romberg's sign, reveal the nature of the disease.

Vomiting in gastric ulcer occurs after food, and is marked by the relief afforded to pain. The vomited matter is highly acid, and usually contains blood, recognizable, if not by the naked eye, by the benzidine and peroxide of hydrogen test.

Cancer of the stomach may cause vomiting if it blocks the pylorus.

Vomiting in dilated stomach occurs only when there is pyloric obstruction; it may be apparently periodic, as it happens only when a large residue has accumulated, and has become highly acid and irritating. An atonic dilated stomach, which may extend down to the pubes does not cause vomiting.

Obstruction of the bowels from any cause gives rise to vomiting. Still says simple constipation in children may be sufficient, and in adults fæcal impaction may determine it. The characteristic feature of the vomiting of intestinal

obstruction is its fæcal odour. It may be caused by strangulated hernia at any of the abdominal openings, through slits of the mesentery or diaphragm, by twists, intussusception, or by strangulation by adventitious bands or adhesions.

The vomiting of peritonitis is frequently severe and intractable.

The vomiting of sea-sickness (*q.v.*) and the subject of hæmatemesis (*q.v.*) are discussed elsewhere.

VON GRAEFE'S SIGN.—See **Exophthalmic Goitre.**

WARTS.—Warts are small pedunculated or sessile papillomata growing from the skin or muco-cutaneous surfaces. They are common on the hands of children. Syphilitic warts are seen about the anus and genitals. Simple warts often disappear spontaneously, but they may be cured by touching with a glass rod dipped in chromic acid solution (liq. acidi chromici, B.P.), or with CO_2 snow, or by cataphoresis with magnesium, or by X rays.

WASSERMANN'S REACTION.—This is a test for the presence of constitutional syphilis, by determining the existence of free complement in the blood, which when fixed forms a hæmolysin. It should be performed in a laboratory by experienced workers if any importance is to be attached to the result. Twenty or 30 c.c. of blood should be withdrawn, with all precautions, from a vein of the patient, and sent to a laboratory for report (see Porges-Meier Reaction).

WAX IN EAR (see **Pain in Ear**).—The cerumen, or natural secretion of the ear, may in some persons become dried, hard, and impacted, so as to press on the tympanic membrane, causing impaired hearing, tinnitus, cough, perhaps pain and giddiness. Long-continued pressure may induce inflammation of the drum. The impairment

of hearing is influenced by the access of moisture, so that if water getting into the external auditory canal makes the deafness worse, it is tolerably certain that impacted wax is the cause.

WEIL'S DISEASE (Infective Jaundice).—See **Jaundice.**

WERLHOF'S SYMPTOM.—This is a form of hæmorrhagic purpura, beginning by crops of petechiæ on the skin, but followed by severe epistaxis, oozing from the gums, hæmaturia, or bleeding from the uterus and the auditory meatus. There may be hæmorrhages into or below the skin. The number of red blood cells falls rapidly. There is marked pallor of the skin. The disease may come to an end in the course of a few days, and recovery take place; but the prognosis is not always so favourable, and death may occur from cerebral hæmorrhage.

WESTPHAL'S SIGN (Patellar Tendon Reflex).—This sign is elicited by tapping with a percussion hammer or the finger over the patellar tendon, with one leg crossed over the other, or with the foot resting upon the ground, with the knee at an angle of about 60 degrees. In the former case, when the tendon is struck, the foot is jerked forward, but in the latter the result of percussion must be noticed by laying the hand upon the thigh muscles, when the bellies of the quadriceps will be felt to contract. This **knee-jerk**, as it is commonly called, is normal when present in a moderate degree; it is exaggerated in neurasthenia and in spastic paralysis, while it is diminished or lost in peripheral neuritis, in tabes dorsalis and other nervous diseases.

WHEALS (see **Urticaria, Dermatographia**).—In irritable states of the skin, or from the irritation of certain plants or insects, the skin may show raised white lines or patches surrounded by hyperæmia.

WHEEZING.—In bronchitis and asthma, from narrowing of the bronchial tubes, respiration is accompanied by musical sounds, piping or whistling in character; it may also be caused temporarily by any local irritation that causes spasm of the glottis.

WHOOPING-COUGH.—See **Cough.**

WIDAL'S REACTION.—This reaction depends upon the fact that the specific microbe of typhoid fever (*Bacillus entericus*) agglutinates or runs together to form clumps in the presence of serum from a case of typhoid fever which contains this "agglutinin." It is specific—that is, the reaction does not take place with sera from other cases—and conversely some of the pathogenic organisms of other diseases react in the same fashion with the sera from persons suffering, or who have suffered, from those diseases. The blood of an individual whose attack of typhoid fever occurred years ago may continue to react, while, on the other hand, it is not until the third or fourth day, and usually in the second week of the fever, that the blood gives this reaction. As the culture used should be fresh, not more than a day old, this test can only be carried out effectively in a laboratory, but the blood drawn from a puncture may be imbibed on blotting-paper and sent through the post. Failure to react does not negative the diagnosis, but on the whole the test is of great value as an aid in confirming opinion in a suspected case, as this fever may run a latent course, and the patient become seriously ill only in the third or fourth week, or even later, while the symptoms may be otherwise obscure.

WORD-BLINDNESS, WORD-DEAFNESS (see **Aphasia**). —In certain lesions of the brain, chiefly from small hæmorrhages, softening, or tumour in the left temporo-sphenoidal lobe, the patient may partially lose the power

to read (word-blindness), though with an effort he can, like a child, spell out the letters, and so recognize the word, but he has lost the memory of its appearance; so, too, he may lose the memory of the sound and meaning of words (word-deafness), and become like a stranger in a foreign country.

WRITER'S CRAMP (Occupation Neuroses).—Clerks and writers, pianoforte players, violinists, telegraphists, and typewriters, suffer from loss of power with spasm in the muscles concerned in the performance of acts involved in the course of their daily occupation. The cramp may be accompanied by pain or aching in the muscles, tenderness over the nerves; there may be tremor, and various alterations of sensation may be met with. The electrical reactions are as a rule normal, and no marked wasting is present. The treatment involves absolute rest for the groups of muscles concerned, but where a faulty mode of action has existed, this must be corrected when any attempt is made to resume work. Local massage is decidedly beneficial, and an intelligent masseuse, who can make the patient exercise the various muscles, and will combine these exercises with rubbing and passive movements, may do much to expedite the cure. Where writing with the pen has caused the cramp, the use of a typewriter should be substituted.

WRY NECK (Torticollis).—Wry neck is a tilting of the neck sideways by spasm of the sterno-mastoid muscle. It may be congenital or rheumatic, or the result of inflammation. In some cases many other muscles may share in the spasm, and the patient may get paroxysmal attacks of contraction of the group of muscles of the neck, shoulder, and upper extremity on one side, leading to their marked hypertrophy.

In simple cases cure may be effected by dividing a few fibres of the muscle, or by dividing or excising a portion

of the spinal accessory nerve that supplies the sterno-mastoid and trapezius muscles, but the worst cases are beyond the aid of surgery, although some relief is afforded by nerve sedatives, bromides, and cannabis indica.

XANTHELASMA, XANTHOMA.—Growths in the skin of a yellowish colour, which may be flat (X. planum) or nodular (X. tuberosum), usually on the eyelids, but occasionally on the extensor surfaces of the limbs, the elbows, the buttocks, or on the trunk. They sometimes itch or burn, and are often associated with diabetes (X. diabeticorum). They vary in size from a pin's head to a pea, or larger, and continue to grow, but rarely make their appearance before forty years of age.

XANTHIN.—The xanthin bases are regarded as the sources of uric acid, but xanthin itself has been occasionally found in the urine of children as a crystalline sediment of six-sided tables and prisms.

XANTHOPSIA.—Objects look yellow to the patient when the media of the eye are stained yellow with bile, or as an effect of santonin-poisoning.

XEROSIS.—This is a mild form of ichthyosis (*q.v.*), usually on the limbs, but sometimes on the face. The skin is dry and scaly.

YAWNING.—An involuntary spasmodic inspiration, with depression of the lower jaw, followed by a deep, noisy expiration. It is ordinarily indicative of fatigue, but it is also imitative, for if one person in a room begins to yawn, others unconsciously copy the act. It is commonly noticed as a premonitory symptom of malarial fever.

YELLOW FEVER.—An acute specific infectious fever, endemic in the West Indies, Brazil, and the west coast of Africa, extending in epidemic times to the seaports of Central America, the Southern States of the Union, Spain,

and Portugal. It is caused by a specific microbe, the *Bacillus icteroides*, infection being carried by mosquitoes (*Stegomya fasciata*). One attack confers immunity, and as children usually get the disease mildly, it is probable that the immunity of the resident population is acquired. It is communicated from the sick to their attendants, if these are not immune. The incubation period is from one to five days. There may be some vague premonitory symptoms, but the attack begins with a chill; the temperature rises to 102° to 104°; the pulse is at first full, fast, and strong, and later becomes slow and weak; the face is red; the eyes injected; there is complaint of light, of pain in the eyes, of frontal headache, backache, and joint pains. On the second day there is nausea and vomiting, the tongue is coated, but red at the tip and edges; the gums swell and bleed; the urine is loaded, and contains a little albumin. This condition lasts two to four days, when the temperature falls, the pulse becomes normal, the albuminuria disappears, appetite returns, and in what are called "abortive cases" convalescence sets in. But the temperature generally rises again, jaundice develops, the colour of the skin being any degree from straw to bronze. Vomiting of blood (black vomit), bleeding from the nose, gums, and other mucous surfaces, subcutaneous ecchymoses, slow pulse, cold extremities, and highly albuminous urine, mark this second stage. Recovery is possible if these symptoms are not too severe, but convalescence is slow. Favourable signs are increased quantity of urine and cessation of vomiting. Death usually occurs on the fourth to the eighth day from exhaustion or toxæmia. There is a type so mild that the disease may not be recognized, and another so virulent that death occurs in thirty-six to forty-eight hours from convulsions and coma. The mortality varies in different epidemics; it has been as high as 87 per cent., and as low as 2 per cent. The prognosis depends upon the prevailing

character of the epidemic, and the age and condition of the patient, new-comers suffering more, while grave signs are the severity of early symptoms, collapse, extensive hæmorrhages, and suppression of urine. Preventive measures are improved drainage, wider streets, mosquito prevention, and protection by wire gauze shutters and nets. No one not immune should sleep in the neighbourhood of the harbour; ships should be moored outside. The sick should be isolated, their quarters disinfected; contacts should be quarantined for a week. If the fever breaks out in a ship at sea, she should steer straight for cooler latitudes. Ashore, if possible, the patient should be removed from the infected area. In the initial stage a dose of calomel and a mustard foot-bath seem to be approved; an ice-cold mixture, containing $\frac{1}{60}$ grain of corrosive sublimate and 5 grains of bicarbonate of soda, should be given every hour, and in addition several pints of iced Vichy-water or soda-water containing 40 grains of soda to the pint, should be taken daily. If the fluid is rejected, normal saline solution should be run into the veins or under the skin. The temperature should be kept down by cold sponging, or ice-cradling, or the cold bath. An ice-bag or mustard-leaf to the epigastrium may be tried to allay the vomiting, and small doses of turpentine or adrenaline given for the hæmorrhage. The practice is to allow no food at all for the first three days, then only milk and lime-water, chicken-broth, or arrowroot. The utmost caution in feeding is enjoined during convalescence, lest the vomiting should return.

INDEX

Abdominal pain, 1, 173, 405
Abductors of larynx, paralysis of, 142
Abortion, 3, 386
Abscess, 4
of liver, 132, 134
post-pharyngeal, 143
Abscesses, fixation, 222
in prostate, 282
Acetonæmia, 5
Acetonuria, 5
Acetonuric vomiting, 418
Achilles jerk, 4
Achondroplasia, 5, 131
Achromatopsia, 82
Acidity, 5
Acidosis, 5
Acne, 6, 362
Acromania, 328
Acromegaly, 175
Acrophobia, 327
Actinomycosis, 8
Addison's disease, 330
Adiposis dolorosa, 9
Adolescence, albuminuria of, 13
Adolescent lethargy, 298
Agar-agar, 86
Ageusia, 9
Agglutinin, 422
Agoraphobia, 10, 328, 415
Agraphia, 10
Ainhum, 164
Air-passages, foreign bodies in, 142
obstruction of, 142
Akoria, 210
Albinism, 10
Albuminuria, 11
orthostatic, 12
Albumosuria, 15, 324
Alcohol, 398
Alcoholic glycosuria, 176
paraplegia, 317
Alcoholism, 16, 301
Alexia, 17
Alimentary diabetes, 176
Alkaptonuria, 17, 269
Allocheiria, 17
Alopecia, 17, 362
areata, 18
Amaurosis, 19
Amblyopia, 19
Amenorrhœa, 20
Ammoniacal urine, 411
Amnesia, 21
Amœba histolytica, 133
Amphoric breathing, 66
Amyosthenia, 23
Amyotrophic lateral sclerosis, 49
Amyotrophy, protopathic, 49
Anæmia, 26
cerebral, 416
Anæsthesia, 23
dissociated, 387
general, 313
local, 314
spinal, 314
Anæsthetics, 23
Analgesia, 23
Analgesics, 314
Anaphylaxis, 25
Anasarca, 25, 125
Androphobia, 328
Aneurism, 28, 386, 398
miliary, 28
Aneurismal cough, 95
murmur, 292
varix, 29
Angina pectoris, 30, 386
Angioma, 32
Angioneurotic œdema, 33, 126
Ankle clonus, 33
Anopheles, 241, 258
Anorexia, 33
Anosmia, 34
Anthrax, 261, 372
internal, 261
œdema, 261
Anuria, 34
Anus, fissure of, 167
Aortitis, 42
Aphasia, 35, 422
Aphonia, 36, 239
Aphthæ, tropical, 373
Apoplexy, 36
ingravescent, 39
Appendicitis as cause of vomiting, 418
Appendicular colic, 1
Appetite, diminished, 209
excessive, 209
loss of, 33, 209
Apraxia, 39
Argyll-Robertson pupil, 345, 388
Argyria, 252
Arrhythmia, 39
Arteries, pain in, 42
Arterio-sclerosis, 42, 342
Arthralgia, 43
Ascites, 44, 124, 125
milky, 286
Aseptic ulcer, 408
Asphyxia, 44
local, 383, 385
Astasia-abasia, 45
Asthma, 45
hay, 198
Ataxia, 47
Ateliosis, 48, 129
Atheroma, 342
Athetosis, 48
Atrophy, 48
muscular, 49
of glands, 50
of optic nerve, 388
Auditory vertigo, 415
Aura, 51
Automatism, 52

Babinsky's sign, 52
Bacillus anthracis, 261
Eberth's, 403
entericus, 403, 422
Flexner's, 132
icteroides, 425
Klebs-Loeffler, 348
lepræ, 241
pestis, 333

Bacillus, Shiga's, 132
tuberculosis, 401
Back, pain in, 53
Bacteriuria, 54
Baldness, 17
Barry, Inspector-General James, 206
Batomania, 328
Batophobia, 328
Bechterew's reflex, 55
Bedsores, 55
Bees'-stings, 225
Belching, 154
Beri-beri gangrene, 172
Bial's orcin reagent, 323
Bichat's pad, 55
Biernacki's symptom, 55
Bilharzia, 186
Biliary colic, 80
Biliousness, 56
Birth-mark, 32
Birth palsy, 119
Bites of insects, 223
Blackwater fever, 192
Bladder, growth in, 188
infection, 54
tubercle of, 188
Bleeders, 56, 193, 381
Bleeding, 381
from gum, 182
of the nose, 153
Blepharitis marginalis, 147
Blindness, night, 303
Boils, 57
Bothriocephalus latus, 389
Bradycardia, 343
Breast, fistula of, 168
pang, 30
pigeon, 330
Breath, foul, 169
Breathing, amorphic, 66
cavernous, 66
difficulty in, 141
pain on, 59
Brittleness of nails, 61
Bromidrosis, 61, 163
Bronchophony, 319
Bronzed diabetes, 332
Bubonic plague, 334
Bulbar paralysis, 49
Bulimia, 210
Bunion, 62
Bursitis, 62

Cachexia, malarial, 259
Cæruleus, morbus, 100
Caisson disease, 62
Calcification, 342
Calculus of kidney, 280
Callosities, 63
Calmette's oculo-reaction, 98
Cammidge's reaction, 63
Cancer of kidney, 187
of prostate, 188
of stomach, 2
Cancrum oris, 172
Cannon fever, 162
Capillary pulsation, 341
Carboluria, 269
Carbuncle, 57
Cardiac murmur, 292
Caries, 64
Carpopedal spasm, 65, 392
Cascara, 87
Catalepsy, 65
Cavernous breathing, 66
Cellulitis, 66
Centipede sting, 225
Cerebellar gait, 67, 170
Cerebral anæmia, 416
degeneration, 275
vomiting, 419
Cervical ribs, 67
Ceylon sore-mouth, 373
Chalazion, 67
Chancre, 67
Chancroid, 67
Change of life, 68
Charcot-Leyden crystals, 69
Charcot's joints, 68, 387, 388
Cheiropompholyx, 69
Cheloid, 235
Chemosis, 70
Chest, pain in, 70
Cheyne-Stokes breathing, 292
respiration, 70
Chilblains, 72, 384
Child-crowing, 240
Children, vomiting in, 416
Chloroma, 72
Chlorotic gastralgia, 1
Cholera, 73
Chorea, 74
electric, 75
epidemic, 75
Huntington's, 75
magna, 75
minor, 75
senile, 75
Choroiditis, 386
Chromidrosis, 331
Chvostek's symptom, 75, 392, 402
Chyluria, 75
Claudication, intermittent, 77
Claustrophobia, 328, 415
Claw-hand, 77, 387
Climacteric, 272
Clubbing of fingers, 77
Club-foot, 78
Coagulose, 184
Coccydynia, 53
Cogwheel respiration, 79
Colic, 79
appendicular, 1
pancreatic, 1
renal, 187
Collapse, 81
Colour blindness, 82
ignorance, 83
Colour of urine, 411
Coma, 83, 408
arterio-sclerotic, 43
diabetic, 1
Kuessmaul's, 5
vigil, 83
Concussion, 416
Congenital idiots, 275
Conjugate deviation, 84
Conjunctivitis, 84
Connective-tissue tumour, 403
Constipation, 85
Contraction, Dupuytren's, 128
onsetter's, 128
spastic, 372
Contracting kidney, 187
Contusion, 88
Convulsion, 88, 389, 392, 407
tetanic, 390
Corns, 63
Corrigan's pulse, 344
Coryza, 92
Cough, 94, 343
aneurismal, 95
caused by wax in ear, 420
hysterical, 96
laryngeal, 96
nervous, 94
of puberty, 96
stomach, 94
whooping-, 422
Coxa vara, 96
Cramp, 97
writer's, 423
Craniotabes, 354
Creosote rash, 333
Cretinism, 129
endemic, 189
sporadic, 130
Cretinoid idiots, 275

Deaf, 97
  [illegible], 98, 99
  [illegible], 97
  [illegible], 1, 99
  [illegible], 99
Deafness, 97
  [illegible], 98
  [illegible], 97
Deaf-mutes, 100
Death, 99
  [illegible], 99
Death-rate, 100
Decay, 99
  [illegible], 99
Decay of [illegible], 100
Decidua, 100
Decomposition, 100
Decrepitude, 100
Defective hearing, 100
Deficient [illegible], 100
Deformities, 100
Degeneration, 100
Degenerative, 100
Degeneracy, 100
Degeneration, 100
Degeneration, 100
Degeneration

Epulis, 182
Erb's nervous vomiting, 417
Ergotism, 154
Eructation, 154, 352
Eruption in typhus, 407
Erysipelas, 156
Erythema infectiosum, 157
Erythræmia, 336
Erythrasma, 158, 331
Erythromelalgia, 158
Exophthalmic goitre, 158
Expectoration, prune-juice, 339
Extrasystole, 41
Eye, pain in, 160
  strain, 418
Eyes, atrophied, 161

Fæcal incontinence, 161
  fistula, 167
Fæces, 162
Fainting, 381
Fasting girls, 33
  periodic, 202
Fatty stools, 163
Feeding, artificial, 354
Feet, 163
  cold, 163
  paræsthesiæ of, 164
  sore, 163
  sweating, 163
Fever, 390, 165
  bilious remittent, 259
  blackwater, 192
  cannon, 162
  continued, 165
  enteric, 259, 403
  ephemeral, 152, 165
  growth, 165
  hay, 198
  intermittent, 165
  malarial, 257, 372
  malignant, 259
  Malta, 165, 408
  marsh, 257, 372
  Persian tick, 395
  relapsing, 165
  remittent, 165
  Rocky Mountain, 395
  South African tick, 395
  splenic, 261
  Texas, 395
  tick, 395
  typhoid, 259, 403
  typhus, 406
  undulant, 165, 408
Fever, yellow, 424
Fibrillary twitchings, 166
Fibroid tumour, 295
Fièvre de croissance, 165
Filaria sanguinis hominis, 149
Fingers, dead, 382
Finsen's light treatment, 255
Fish-skin disease, 216
Fissure, 166
  of the anus, 166
Fistula, 167
  auris congenita, 167
  broncho-pleural, 167
  in ano, 167
  of breast, 168
  of the nipple, 167
  umbilical, 168
  urinary, 168
  vesico-vaginal, 168
Fixation abscesses, 222
Flanders foot, 164
Flat-foot, 78, 168
Fleas, 224
Flexner's bacillus, 132
Folie du doute, 223
Foot, Madura, 294
Foul breath, 169
Fourth disease, 157
Fragilitas ossium, 170
Frost-bite, 170, 384
Furunculosis of the meatus auditorius, 145

Gait, cerebellar, 170
Gall-stones, 251
Gametes, 258
Ganglion, 170
  traumatic, 171
Gangrene, 171
  beri-beri, 172
Gangrenous rectitis, 172
Gastralgia, chlorotic, 1
  nervous, 1, 173, 174
Gastrectasy, 116, 173
Gastric crisis, 3
  ulcer, perforation of, 2
  vomiting, 419
Gastritis, 1
Gastro-enterostomy, 393
Gastroptosis, 174
Gastrorrhagia, 174
General paralysis of insane, 174
Genital spots, 174
Genu valgum, 238
German measles, 157
Giantism, 174
Giddiness, 175, 414, 420
  caused by wax in ear, 420
Girdle pain, 70, 175
  sensations, 175
Girls, fasting, 33
Glands, atrophy of, 50
Glaucoma, 161
Glottis, œdema of, 143
Glycosuria, 113, 176
  alcoholic, 176
  alimentary, 176
  temporary, 176
Goitre, 177
  endemic, 110
Gonococcus, 413
Gonorrhœa, 177, 413
Gonorrhœal conjunctivitis, 413
Goose-flesh, 355
Gordon's paradox flexor reflex, 351
Gout, 178
  of the penis, 180
Gouty cachexia, 179
  teeth, 180
Granular lids, 399
Graves' disease, 181
Graves on opium in typhus fever, 407
Griffe pied creux, 77
Grocco's sign, 181
  paravertebral triangle, 181
Groin, pain in, 181
Growth in bladder, 188
Gum, 181
  bleeding from, 182
  growths of, 182
  hypertrophy of the, 181
Gummata, 386
Gynephobia, 328
Gyrospasm, 182

Hæmamœba, cycle of, 257
  malariæ, 240
  præcox, 241
  vivax, 240
Hæmatemesis, 182
Hæmatoma auris, 185
Hæmatoporphyrin, 412
Hæmatoporphyrinuria, 186, 412
Hæmaturia, 186
  parasitic, 188
Hæmidrosis, 191
Hæmochromatosis, 332
Hæmoglobinuria, 192
  paroxysmal, 192, 384

Hæmophilia, 56, 193
renal, 186, 189
Hæmoptysis, 194
Hæmorrhage from prostate, 188
Hæmorrhagica, purpura, 189
Hæmorrhoids, 196
Haffkine's inoculation, 335
Hallucination, 109
Haphalgia, 198
Harvest bugs, 224
Hay fever, 198
asthma, 198
Headache, 199
due to constipation, 201
due to decayed teeth, 201
hysterical, 200
neurasthenic, 200
sick, 202
syphilitic, 200
Heart, 341, 342, 343
block, 343, 380
disease, 203, 292
vomiting in, 419
fatty, 364
sounds, reduplication of, 351
Heartburn, 70, 155
Heat shock, 226
fever, 226
Hebephrenia, 204
Heberden's nodes, 179, 204
Hebra's prurigo, 230
Hedgehog crystals, 250
Hemiplegia, 204
hysterical, 205
simulated, 204
transient, 204
Hermaphroditism, 205
false, 206
true, 206
Hernia, inguinal, 3
pain in, 206
Herpes zoster, 60
Hiccough, 206
Hill diarrhœa, 373
Hippocratic facies, 207
fingers, 77, 208
Hippus, 208
Hoarseness, 37, 208
Hodgkin's disease, 247, 255
Holland's patent sock, 169
Honey-poisoning, 208, 304
Hordeolum, 160
Hornet stings, 225
Horripilation, 355
Housemaid's knee, 62
Hump-back, 239
Hunger, 209
pain, 1
Huntington's chorea, 75
Hydatids, 251
Hydræmic plethora, 26
Hydrarthrosis, 211
Hydriothionuria, 211
Hydrocele, 25, 124, 211
encysted, 212
Hydrocephalic cry, 99
idiot, 275
Hydrocephalus, 25, 124, 202
Hydronephrosis, 237
Hydropericardium, 25, 124
Hydrophobia, 328
Hydrops articuli, 211
Hydrothorax, 25, 124
Hypertrophic osteo-arthropathy, 78
Hyperdicrotic pulse, 344
Hyperidrosis, 213
Hypernephroma, 213, 403
malignant, 213
Hyperpiesis, 214
Hyperpyrexia, 214, 352, 405
Hypertrophy of the gum, 181
Hypospadias, 206, 214
artificial, 215
uncontrollable, 210
Hysteria, 215, 286
major, 391
Hysterical cough, 96
vomiting, 417

Ichthyosis, 216
Icterus gravis, 234
neonatorum, 235
Idiocy, amaurotic infantile cerebral degeneration, 275
congenital, 275, 402
cretinoid, 275
developmental, 275
eclampsic, 276
epileptic, 276
hydrocephalic, 275
juvenile paralytic, 276
mongoloid, 275
porencephalic, 275
primarily neurotic, 275
Idiocy, sclerotic, 276
syphilitic, 276
traumatic, 276
Ileus, 217
Illusion, 109
Imbecility, 223
moral, 289
Immunity, 217
Impressions, maternal, 266
Incontinence, fæcal, 161
of urine, 218
Indicanuria, 219
Indigestion, 219
Infantile convulsion, 89
diarrhœa, 115
Infantilism, 129, 219
Infants, artificial feeding of, 354
Infarction, 150, 195
pulmonary, 195
Infection, 219
Infective sinusitis, 93
Inflammation, 222, 341
Inguinal hernia, 3
Inoculation, 222
curative, 222
preventive, 222
Insane ear, 185
paralysis of, 174
Insanity, 222
acquired, 223
alternating, 223
confusional, 223
congenital, 223
cyanotic, 100
cyclical, 223
delusional, 223
impulsive, 223
Insects, bites and stings of, 223
Insolation, 226
Insomnia, 364, 405
nervous, 365
of heart disease, 368
of old age, 368
visceral, 365
Insular sclerosis, 122
Intermenstrual pain, 227
Intestinal colic, 79
Intoxication, 228
Inunction, mercurial, 288
Iritis, 160
Irritability, myostatic, 295
Irritable bladder, 228
Ischuria, 228
Itch, 228
dhobie, 356
Itching, 229

Jacksonian epilepsy, 90
Jaundice, 233, 421, 425
epidemic, 234
family, 233
infantile, 235
infective, 234, 421
malignant, 234
Jephson's powder, 348
Joint, affections, mimetic, 286

Kala-azar, 372
Keloid, 235
Keratitis, 235, 386
Kerion, 356
Kernig's sign, 236
Kidney, calculus in, 237, 280
cancer of, 187
contracting, 187
growth in, 238
movable, 1, 237
neuralgia of, 238
pain, 53, 236
stone in, 187, 237, 280
tubercle of, 187, 238
tuberculosis of, 238
Klebs-Loeffler bacillus, 116, 348
Kleptomania, 328
Kleptophobia, 328
Knee-jerk, 388, 421
Knock-knee, 238
Koplik's spots, 239, 267
Korsakoff's psychosis, 239
Kuessmaul's coma, 5, 239
Kyphosis, 239, 406

Lactase, 177
Lactose, 177
Lactosuria, 177
Laryngeal cough, 94
paralysis, 36, 142, 239
Laryngismus stridulus, 240, 389
Lateral curvature, 361
Laveran's bodies, 240
Laxamel, 87
Laxatives, 87
Leontiasis ossea, 241
Lepræ, Bacillus, 241
Leprosy, 241
Leptomeningitis, 270
Lethargy, 65, 298, 399, 401
negro, 298
of adolescence, 298
Leucin, 243
Leucocytosis, 243
Leucoderma, 244
Leucopenia, 243, 245
Leucorrhœa, 245
Leukhæmia, 245
pseudo-, 247
Leukanæmia, 246
Leyden's periodic vomiting, 417
Lice, 247
Lightning, death from, 248
pains, 248, 388
Limbs, pain in, 268
Lipæmia, 249
Lipomata, 249
Lip reflex, 248
Lipuria, 249
Liquid paraffin, 86
Lithuria, 250, 409
Liver, pain, 251
pulsation, 342
Lividity, 252
cadaveric, 252
Lockjaw, 252
Locomotor ataxy, 388
Longevity, 252
Lordosis, 252
Loss of light reflex, 345
Lumbago, 253
Lupus, 254
erythematosus, 255
exedens, 254
vulgaris, 254
Lymphadenitis, 255
Lymphadenoma, 247, 255
Lymphangioma, 256
Lymphatic nævus, 33
Lymphaticus, status, 256
Lymphatism, 256
Lymphocythæmia, 257
Lymphoma, 257
Lysis, 257

McBurney's point, 257
Macroglossa, 256, 25
Madura foot, 294
Magnan's sign, 257
Maidismus, 320
Main en griffe, 77
Maize, 320
Malaria, 257
parasites, 240, 257
prophylactic treatment of, 260
Malarial cachexia, 259
vomiting, 419
Malignancy, 260
Malignant endocarditis, 261
Malignant fever, 259, 261
pustule, 261
tumour, 403
Malingerers, 382
Malingering, 262, 382
Malta fever, 165, 408
Mammary pain, 264
Mania, 265
acute, 265
chronic, 265
delirious, 265
ephemeral, 265
recurrent, 265
Maniacal delirium, 107
Manias, 305, 328
acromania, 328
batomania, 328
dipsomania, 328
kleptomania, 328
nymphomania, 328
pyromania, 328
Marasmus, 51
Mastication, pain in, 265
Mastodynia, 266
Maternal impressions, 266
Maturity, 267
Measles, 157, 267
Meatus, furunculosis of the auditory, 145
Mediastinitis, 268
Melæna, 182
Melalgia, 268
Melanæmia, 268
Melancholia, 269
Melanin, 269
Melanuria, 269
Memory, 21, 270
loss of, 21
visual, 22
Ménière's disease, 405
Meningismus, 270
Meningitis, 270
tubercular, 271
Meningococcus of Weichselbaum, 288
Menopause, 68, 272
Menorrhagia, 272
Menses, retention of, 138
Menstruation, 183, 267, 273, 274, 340
Menstruatio præcox, 274
Mental deficiency, 275
depression, 276
Meralgia paræsthetica, 277
Mercurial inunction, 288
Mercyism, 156, 277
Metastasis, 277
Metatarsalgia, 169, 278

Metrorrhagia, 273, 278
Microbes, fœtor-producing, 155
Micromania, 278
Micromegaly, 278
Microphthalmos, 279
Microsporon audouini, 356
minutissimum, 158
Micturition, 228
frequent, 279
painful, 280
Migraine, 201
Miliaria, 285
Milium, 285
Milky ascites, 286
Mimetic joint affections, 286
Miner's nystagmus, 305
Mirror-writing, 286
Mittelschmerz, 227
Mollities ossium, 287
Molluscum contagiosum, 287
Mongoloid idiocy, 275
Monoplegia, 204, 288
Monstrosities, 403
Moral imbecility, 289
Morbus cæruleus, 100
Morning coryza, 92
Morphinism, 289, 290
Morphœa, 291, 360
Morvan's disease, 291, 387
Mountain sickness, 291
Multiple myeloma, 292
Murmur, 292
aneurismal, 292
cardiac, 292
respiratory, 292
venous, 292
Muscæ volitantes, 293
Muscular atrophy, 49
rheumatism, 60
Mutism, 128
Myalgia, 3, 60, 293
Myasthenia gravis, 293
Myasthenic reaction, 293
Mycetoma, 294
Myelitis, 294, 317
Myelocytes, 245
Myeloma, 15, 292
Myocarditis, 295
Myoidema, 166, 295
Myoma, 295
Myopathy, primary, 49
Myositis, 60
Myotonia congenita, 295, 395
Myxœdema, 295
congenital, 131, 295
Nævus, 32
lymphatic, 33
Nails, brittleness of, 61
deformities and diseases of, 297
incurvation of, 297
onychia maligna, 297
syphilitic onychia, 297
Narcolepsy, 298
Natal boil, 59
Neck, wry, 423
Necrosis, 309
Negro lethargy, 298
Nephralgia, 238
Nephropexy, 152, 237
Nerve deafness, 104
Nervous anorexia, 33
anuria, 35
insomnia, 365
vomiting, 417
Nettle rash, 299
Neuralgia, 60, 299
intercostal, 60
Neurasthenia, 299
Neuritis, 301
acute retrobulbar optic, 161
optic, 308
paraplegia due to, 317
Neuro-arthropathy, 68
Neuromimesis, 215, 301
Neurosis, 301
occupation, 423
Night blindness, 301
Nightmare, 123
Nipple, fissure of, 167
Nits, 248
Nocturnal enuresis, 219, 302
Nodding spasm, 182, 304, 357
Nodules, 304, 399
singer's, 399
Noma, 172
Nose bleeding, 153
Nubility, 274
Numbness, 25, 304
Nummular sputa, 304
Nyctalopia, 301
Nymphomania, 305, 328
Nystagmus, 304, 305, 387
miner's, 305
Obesity, 305
Obsession, 109
Obstruction of air passages, 142
Occupation neuroses, 423
Ochlophobia, 415
Odour of urine, 411
Œdema, 25, 307
angioneurotic, 33, 126
malignant, 127
of glottis, 143
of pharynx, 142
Œsophagus, spasmodic stricture of, 140
Œsophagismus, 305
Old age, 305
Oliguria, 228
Onsetter's contraction, 128
Onychia maligna, 297
syphilitica, 297
Ophthalmoplegia, 308
externa, 308
interna, 308
Opisthotonos, 150, 308
Opium, 289
in typhus, 407
Optic neuritis, 308
vertigo, 415
Oral sepsis, 309
Orbital cellulitis, 66
pain, 160
Oriental boil, 59, 309
Orthopnœa, 141, 309
Orthoptic exercises, 377
Orthostatic albuminuria, 12
Orthotonos, 309
Osteitis deformans, 239 309
Osteo-arthropathy, 309
Osteocopic pain, 309
Osteo-malacia, 287
Osteomyelitis, 309
Othæmatoma, 185
Otitis externa diffusa, 144
media acuta, 145
chronica, 145
Otorrhagia, 310
Otorrhœa, 310
Ovarian pain, 310
tumour, 310, 403
Oxaluria, 311
Ozæna, 169
Pachymeningitis, 270
Paget's disease, 309
Pain, 299, 312
abdominal, 173
dependent on disease, 53
epigastric, 2
from deficient alkalinity of blood, 313

Pain from enlarged spleen, 53
from local anæmia, 313
girdle, 70
hunger, 1
in arteries, 42
in back, 53
in chest, 70
in ear, 145
in eye, 160
in groin, 181
in hernia, 206
in kidney, 53
in limbs, 268
in liver, 251
in mamma, 264
in mastication, 265
in ovary, 310
in veins, 413
on breathing, 59, 70
on defæcation, 105
on micturition, 280
orbital, 160
osteocopic, 309
perception of, 313
protective function of, 312
referred, 313
relief of, 314
Pallor, 315
Pancreatic colic, 1, 81
Panophthalmitis, 161
Papillomata, 420
Paræsthesia, 315
Paraffin, liquid, 86
Paragonimiasis, 195
Paralysis, 315
agitans, 316
bulbar, 49
general, of the insane, 110
laryngeal, 36, 142, 239
of insane, 110, 174
of the laryngeal abductors, 36, 142, 239
Paralytica, Dementia, 386, 388
Paralytic dementia, 276
squint, 376
Para-myoclonus multiplex, 91
Paraplegia, 204, 294, 317
spastic, 402
Parasites, malaria, 240, 257
Parasitic hæmaturia, 188
Parasyphilis, 386
Paresis, 316
Parotitis, 318, 319
Paroxysmal hæmoglobinuria, 192
Passive tremor, 399
Pasteur, 262
Patellar tendon reflex, 421
Pectoriloquy, 319
whispering, 319
Pediculus capitis, 247
pubis, 247
vestimentorum, 247
Peg-shaped incisor teeth, 386
Peliosis rheumatica, 319, 346
Pellagra, 320
Pemphigus, 321
acutus malignus, 322
family, 322
foliaceus, 322
neonatorum, 322
tropical, 323
vegetans, 322
vulgaris, 321
Penis, gout of, 180
Pentosuria, 323
Peptonuria, 324
Perforating ulcer, 408, 324
Pericarditis, 352
Periodontitis, 324
Periostitis, 325
girdle, 70
syphilitic, 60
Peritonitis, 325
vomiting in, 420
Persian tick fever, 395
Pes cavus, 78
Petechiæ, 346
Petit mal, 382
Phagedæna, 326
tropical, 326
Phantom tumour, 326, 403
Pharynx, œdema of, 142
Phimosis, 327
Phlebitis, 327, 413
Phobias, 327
agoraphobia, 328
androphobia, 328
batophobia, 328
claustrophobia, 328
dipsophobia, 328
gynephobia, 328
hydrophobia, 328
kleptophobia, 328
pathophobia, 328
pediculophobia, 328
pyrophobia, 328
Phobias: syphilophobia, 328
Phosphates, acid calcium, 329
neutral, 329
stellar, 329
triple, 329
Phosphatic diabetes, 329
Phosphaturia, 329
Phossy jaw, 310
Phthisis, vomiting in, 418
Pigeon breast, 330
Pigmentation, 244
hyperæmic, 331
metallic, 332
neoplastic, 331
nervous, 331
of the skin, 330
parasitic, 331
toxæmic, 331
Pigmentosa, Xeroderma, 332
Pigments in urine, 411
Piles, 105, 196
bleeding, 197
external, 197
Pinta, 331
Pleurisy, 60
Puberty, cough of, 96
Pirquet's test, 99
Pitmen's rashes, 332
Pityriasis capitis, 103
versicolor, 331
Piroplasma hominis, 395
Piroplasmosis, 395
Plague, 333
ambulatory, 335
bubonic, 334
intestinal, 334
pneumonic, 334
septicæmic type, 343
Plethora, 335
venous, 335
Pleurisy, 335
Pleurodynia, 335
Pleurothotonos, 335
Plica polonica, 248
Pneumaturia, 335
Pneumonia, 336
Pneumopericardium, 336
Polycythæmia, 336
Polyuria, 113, 337, 394
in typhus, 407
Ponos, 372
Porencephalic idiocy, 275
Porges-Meier reaction, 339
Port-wine stain, 32
Pregnancy, ectopic, 2

Prepuce, inflamed, 280
Presbyopia, 339
Priapism, 339
Priessnitz bandage, 366
Progeria, 129, 339
Prostate, 151, 188, 283, 340
  abscess in, 282
  cancer of, 188
  enlarged, 151
  hæmorrhage from, 188
Prurigo, 229
  Hebra's, 230
Propulsion, 316
Pruritus, 229
  ani, 232
  æstivalis, 231
  hiemalis, 231
  neurotic, 231
  palmaris, 232
  senilis, 231
  vulvæ, 232
Prune-juice expectoration, 339
Pseudo-sclerosis, 122
  leukhæmia, 247
Psilosis linguæ, 373
Ptosis, 293
Ptyalism, 340, 358
Puberty, 267, 274, 340
Pulmonary hypertrophic osteo-arthropathy, 78
  infarction, 195
Pulsation, 341
  capillary, 341
  epigastric, 341
  episternal, 342
  of liver, 342
  of retinal vessels, 341
  thyroid, 342
  venous, 341, 414
Pulse, 39, 341
  collapsing, 345
  Corrigan's, 344
  hyperdicrotic, 344
  paradoxical, 344
  pressure, 344
  rate, 343
  rhythm, 343
  small, 344
  thready, 344
  wiry, 344
Pulsus alternans, 344
  bigeminus, 344
Pupil, 345
  Argyll-Robertson, 345
  contracted, 345
Pupil, dilated, 345
  hemiopic, Wernicke's, 345
  inequality of, 345
  irregularity of, 345
Purpura, 319, 346
  hæmorrhagica, 189, 346
  simplex, 346
Pustule, malignant, 172
Pyæmia, 363
Pyelitis, infective, 54
Pyonephrosis, 237
Pyorrhœa, 324, 346, 396
Pyrosis, 155

Quinquaud's sign, 347
Quinsy, 347

Rabies, 348
Railway spine, 350
Ranula, 350
  sublingual, 350
  submental, 350
Rash, creosote, 333
  sweat, 285, 333
  water, 333
Rashes, pitmen's, 332
Raynaud's disease, 350, 383
Reaction of degeneration, 350
Rectal atresia, 351
Rectitis, epidemic gangrenous, 172
Reduplication of heart sounds, 351
Reflex, Gordon's paradox flexor, 351
  vomiting, 418
Regulin, 86
Regurgitation, 154, 352
Renal calculi, 179
  colic, 80, 187
  hæmophilia, 186, 189
Respiration, Cheyne-Stokes, 70
  cogwheel, 79
Respiratory murmur, 292
Retinitis pigmentosa, 303
Retropulsion, 316, 352
Rheumatic nodules, 304
Rheumatism, 60, 352
Rhinitis, chronic atrophic, 169
Rhinorrhœa, 353
Ribs, fractured, 60
  cervical, 67
Rickets, 354
Rickety rosary, 354
Rigidity, spinal, 372, 406
Rigor, 355, 407
Ringworm, 356
  tropical, 356
Risus sardonicus, 357
Rocky Mountain fever, 395
Rodent ulcer, 357
Romberg's symptom, 357
Rosacea, acne, 357
Rusty sputum, 334

Salaam convulsion, 357
Salivation, 340, 358
Salpingitis, 358
Salvarsan, 386
Sapræmia, 363
Sassafras, oil of, 248
Satiety, loss of sense of, 209
Satyriasis, 358
Scabies, 228
Scarlatina, 157
Schmidt's test, 162, 358, 374
Sciatica, 359
Scissor-leg deformity, 359
Sclavo's serum, 262
Sclerema neonatorum, 359
Scleroderma, 360
Sclerosis, disseminated, 122
  insular, 122
  pseudo-, 122
Sclerotitis, 161
Scoliosis, 361, 406
Scorpion stings, 225
Scott's "Black Dwarf," 131
Sea-sickness, 361, 420
Seborrhœa, 18, 103, 357, 362
  nigricans, 331
  sicca, 103
Seminal emissions, 363
Senile chorea, 75
Senna pods, 87
Sepsis, 363
Septic marsh fever, 372
  ulcer, 408
Septicæmia, 363
Shiga's bacillus, 132
Shock, 313, 363
Shuddering, 355
Sighing, 364
Simulium, 320
Singer's nodules, 399

Singultus, 206
Sinus irregularity, 41
Skin pigmentation, 330
Skodaic resonance, 364
Sleeping sickness, 298
Sleeplessness, 364
Smallpox, 368
confluent, 369
hæmorrhagic, 369
varioloid, 369
Snake-bite, 369
poison, 398
Sneezing, 371
Snoring, 379
Somnambulism, 371
Sordes, 405
South African tick fever, 395
Spasm, 403
carpo-pedal, 392
nodding, 304
Spastic contraction, 372
paraplegia, 402
Spearhead bodies, 258
Specific gravity of urine, 410
Spinal disease, 3, 61
rigidity, 372, 406
Spine, railway, 350
typhoid, 373, 403
Spirochæta pallida, 385
Splanchnoptosis, 151
Spleen, pain in, 53
Splenic fever, 261
Splenomegaly, 372
Spondylitis, 406
Spondylolisthesis, 373
Spondylosis, 372
Spots, genital, 174
Spotted typhus, 406
Sprue, 373
Sputa, nummular, 304
Sputum, 375
rusty, 334
Squint, convergent, 376
divergent, 377
non-paralytic, 376
paralytic, 376
Squinting, 375
Stammering, 377
Status epilepticus, 377
Steatorrhœa, 163, 378
Stegomya fasciata, 425
Stellwag's sign, 159, 378
Stercoraceous vomiting, 378
Sterility, 378
Sternutation, 371
Stertor, 379
Stigmata, 379
Stings of insects, 223, 225
Stitch in side, 61
Stokes-Adams syndrome, 40, 381
Stomach, cancer of, 2
cough, 94
dilated, 116, 173
fermentation in, 155
ulcer of, 1
vomiting, 419
Stone in kidney, 187, 237, 280
Stools, fatty, 163
rice-water, 73
Strabismus, 375
Strangury, 379
Stridor, 379
Stye, 160
Subsaltus, 403
Sunstroke, 226
Sweat rash, 285, 333
Syncinesia, 379
Syncope, 363, 379
Syphilis, 385
Syphilitic dactylitis, 102
ecthyma, 146
insanity, 386
onychia, 297
Syphilophobia, 328
Syncope, local, 350, 382
Syringomyelia, 387

Tabes dorsalis, 376, 388
Tâche cérébrale, 271, 388
Tâches bleuâtres, 248, 388
Tachycardia, 343
Tænia, 388
mediocanellata, 389
solium, 388
Talipes, 78
Tapeworm, 388
Tea-tasters' gastritis, 419
Teeth, carious, 64
gouty, 180
Teething, 389
Telegony, 267
Temperature, 390
Temporary glycosuria, 176
Tenesmus, 105
Teratomata, 403
Tetanic convulsions, 390
Tetanus, 390, 391
Tetany, 65, 392, 393
epidemic, 393
in dilated stomach, 393
nocturnal, 393
Texas fever, 395
Thirst, 393
Thomsen's disease, 295, 395
Thymus-Tod, 256
Thyroid pulsation, 342
Tic douloureux, 299
Tick fever, 395
Tinea tonsurans, 356
Tinnitus, 420
Tobacco amblyopia, 19
Tonsillitis, 347
Toothache, 396
Tophi, 396
Torticollis, 423
Toxæmia, 397
alimentary, 397
Toxæmic vomiting, 418
Trachea, pressure on, 143
Tracheal tugging, 398
Trachoma, 399
of vocal chords, 399
Trance, 399, 298
Traumatopnœa, 399
Trebizond, honey of, 208
Tremor, 399
coarse, 400
fine, 400
nodding, 400
passive, 399
volitional, 399
Trichiasis, 400
Trichina spiralis, 400
Trichiniasis, 400
Trichinosis, 400
Trichophyton megalosporon, 356
Trichorrhexis nodosa, 401
Trismus, 252, 390, 401
neonatorum, 65, 401
Tropical aphthæ, 373
Tsetse-fly disease, 401, 298, 399
Tubercle of bladder, 188
of kidney, 187, 238, 280
Tubercular dactylitis, 103
meningitis, 271
Tuberculosis, 401
bacillus, 401
Tuberose sclerosis, 402, 275
Tumour, fibroid, 295
ovarian, 310
phantom, 326
Tumours, 402
connective - tissue, 403
dermoid, 403
epithelial, 403

Tumours, malignant, 402
ovarian, 403
phantom, 403
Turbidity of urine, 411
Twitching, 403
Typhoid fever, 403
spine, 373, 403, 406
Typhus, crisis in, 407
eruption in, 407
fever, 406
opium in, 407
polyuria in, 407
Tyrosin, 243

Ulcer, 408
aseptic, 408
duodenal, 1
of stomach, 1
perforating, 324, 388
perforation of gastric, 2
rodent, 357
septic, 408
Ulceration, 408
Umbilical fistula, 168
Undulant fever, 165, 408
Uræmia, 408
Uræmic coma, 83
Urethral caruncle, 280
Uric acid, 409
diathesis, 178
Urinary fistula, 168
Urine, 409
ammoniacal, 411
colour of, 411
incontinence of, 218
normal pigments of, 411
odour of, 411
quantity of, 409
reaction of, 410
specific gravity of, 410
suppression of, 34
turbidity of, 411
Urobilin, 412
Urochrome, 411
Uroerythrine, 411
Urticaria, 299, 421

Vaccination, 412
Vaginismus, 412
Vaginitis, 413
Varicocele, 413
Varicose veins, 414
Variola, 368
Veins, 414
pain in, 414
Veldt sore, 59
Venous murmur, 292
pulsation, 341
pulse, 414
Vertigo, 327, 414
a symptom of brain disease, 415
auditory, 415
epileptic, 415
optic, 415
Vesico-vaginal fistula, 168
Vicarious menstruation, 183
Visceral crisis, 388
insomnia, 365
Vitiligo, 244
Vleminckx's solution, 229
Vocal cords, trachoma of, 399
Volitional tremor, 399
Vomiting, 378, 416
caused by appendicitis, 418
cerebral, 419
cyclical, 101, 418
Erb's juvenile, 417
eye-strain as cause of, 418
hysterical, 417
in children, 417
in dilated stomach, 419
in gastric cancer, 419
in gastric crisis, 419
in gastric ulcer, 419
in heart disease, 419
in obstruction of bowels, 419
in peritonitis, 420
in phthisis, 418
in sea-sickness, 420
in tea-tasters, 419
irregular, 417
Leyden's periodic, 417
malarial, 419
nervous, 417
Vomiting of drunkards 418
reflex, 418
toxæmic, 418
Von Graefe's sign, 159, 420
Vulvo-vaginitis of children, 413

Warts, 420
simple, 420
syphilitic, 420
Wasp stings, 225
Wassermann reaction, 339, 386, 420
Waterbrash, 155
Water-rash, 333
Wax in ear, 415, 420
Weichselbaum's meningococcus, 288
Weil's disease, 235, 421
Werlhof's disease, 346, 421
Wernicke's hemiopic pupil, 345
Westphal's sign, 421
Wheals, 421
Wheezing, 422
Whitlow, painless, 291, 387
Whooping-cough, 422
Widal's reaction, 422
Wilson's morphœa, 291
Winckel's disease, 192
Wool-sorter's disease, 261
Word blindness, 422
deafness, 422
Writer's cramp, 423
Wry neck, 423

Xanthelasma, 424
Xanthin, 424
Xanthoma, 424
diabeticorum, 424
planum, 424
Xanthopsia, 424
Xeroderma pigmentosa, 332
Xerosis, 424
Xerostomia, 394

Yawning, 424
Yellow fever, 424

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